FEB 24 1942

The ILLINOIS Medical Journal

VOL. 81 NO. 2

February, 1942

In This Issue

Senile Ectasy

✦

The Surgical Treatment of Deafness

✦

and

A New Department

Medicine and National Defense

(See page 21 for Table of Contents)

ANNUAL MEETING ILLINOIS STATE MEDICAL SOCIETY SPRINGFIELD, MAY 19, 20, 21, 1942

OFFICIAL JOURNAL OF THE ILLINOIS STATE MEDICAL SOCIETY

. . . for the

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The Illinois Medical Journal

February, 1942

VOL. 81, NO. 2

Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Philip H. Kreuscher, Harry Culver.

Editorials

MEDICINE WILL ACCEPT THE CHALLENGE

The call to physicians to enter the services of the United States armed forces has gone out since the assault on Pearl Harbor. We have been informed that the response has been excellent, but there will be need for many more physicians constantly during coming months as the army increases. It seems quite probable that within another year we shall see the largest army in the history of this country.

The Procurement and Assignment Agency of the government will assume responsibility for the procurement of the necessary physicians, dentists and veterinarians needed in large numbers. They hope to have a long waiting list of men willing to join the forces so that they may make the necessary selections as additional professional men are needed.

We are informed that the present needs are largely for those men under the age of 45, although men over that age who are in good physical condition and ready to enter service, may be accepted. Many physicians believe the questionnaire submitted during the fall and winter of 1940-1941 gave all necessary information and constitutes an enrollment, but this is not the case. This former questionnaire did give much information to the government which should be of much use in the near future, but it did not constitute an actual enrollment.

As this article is being written, word has come that the Procurement and Assignment Agency will soon have another form available for enrollment, and that the form published in the Journal of the American Medical Association and in the January issue of the Illinois Medical Journal will be discontinued.

The medical profession has more to offer the government than ever before with the many contributions to medical science within recent years. The use of the sulfonamides, blood plasma in emergency services, improvement in surgical technique, etc., are indeed most valuable to our nation at this time.

With our present day war wounds it is stated that more debridement of soiled tissue is necessary than ever before and that the use of several of these newer drugs has markedly reduced the mortality rates of extensive wounds. The call has gone out for blood plasma in large quantities and it seems quite probable that blood procurement teams will be needed to work in all of our hospitals to procure this highly desired product. The blood will be sent to the several processing stations where it will be prepared and sealed in proper containers for use anywhere it may be needed.

In addition to the thousands of physicians who will be needed in the armed forces, many others will be needed for essential duties, such as examination of selectees, care of workers in essential industries, preparations for civilian defense, and in many other capacities. It seems quite probable at this time that during the present war there will be something which every able bodied physi-

cian can do to help his country in the "all-out for victory program."

We would recommend that every physician read regularly the many articles along the line of medical preparedness in the Journal of the American Medical Association and also the new department appearing in this issue of the Illinois Medical Journal, "Medicine and National Defense," which will appear regularly for the duration.

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NOW IS THE TIME FOR EVERY PHYSICIAN TO COME TO THE AID OF HIS COUNTRY

Buy Defense Bonds and Defense Stamps to Help Your Country

*****

THE EYE PROBLEM IN THE NATIONAL DEFENSE SITUATION

A National Emergency, such as we have now entered upon, presents untold problems, both immediate and future. Some are beyond the range of solution, but the majority can be solved by cooperation, work and patience. The ophthalmological problems that are raised by the demands of these times are interesting, somewhat embarrassing, but not beyond the possibilities of our present knowledge and capacity.

In this emergency, there are four main roles for the ophthalmological profession:

(A) Duty with the armed forces
(B) Care of the civilian population
(C) Teaching of undergraduate and graduate students
(D) Examination of selective service men

The first duty of the sub-committee on ophthalmology of the National Research Council was to determine whether or not there was a sufficient number of trained men to fulfill these requirements and, if not, to provide adequate training courses to meet the deficiency. Accurate statistics were lacking, but in round numbers it was found that about 6,000 physicians had especial knowledge of the subject. Approximately 2,000 are men in general practice who have some special knowledge of ophthalmology. Another 2,000 have had more or less adequate training and usually do Ear, Nose and Throat work, combined with Eye. The last 2,000 have been

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certificated by the American Board of Ophthalmology.

The Armed Forces require 7500 physicians per million men. Approximately 250 of the medical personnel should be ophthalmologists, which indicates a necessity today of 500 ophthalmologists on active duty. In active hostilities, with resultant casualties, the number will have to be increased slightly. Until the Armed Forces exceed 4,000,000, this will mean the requirement of 1200 to 1300 ophthalmologists. So the number to fulfill the necessities of Class B, C and D would be only 20% less than the existing number of civilian physicians practicing ophthalmology. Consequently, it was not deemed necessary to institute special courses for rapid training and thus lower the professional standards of the specialty.

The duties of the ophthalmologists with the Armed Forces are varied, but do not deviate materially from civilian practice. Geriatrics plays no role and the surgical procedures are mainly those depending upon trauma and not disease. Visual examinations and refractions occupy the majority of attention until battle casualties appear. In such cases, first aid has already been rendered and reparative measures are in order. However, the number of ocular injuries is comparatively small in the total roll of casualties.

The work required in Classes B, C and D will have to be performed by the 80% of ophthalmologists not called to duty with the Armed Forces. Inasmuch as the Services utilize only men from 21 to possibly 35 years of age, the total amount of civilian work as compared to peace time will not decrease materially for the men of that age comprise only a very small percentage of routine practice. But to the usual civilian work must be added that entailed by possible non-military bombing, should we be so unfortunate as to undergo the terrific aerial punishment that has been inflicted upon England. Our civilian physicians must be prepared to undertake at least the first-aid treatment of severe ocular injuries. To that end, there has been prepared under the direction of the National Research Council a Manual on Ophthalmology for the general physician, so located that ophthalmic advice is not immediately available. Specific instructions, particularly for the management of wound and gas injury, utilizing only facilities available to all medical men, are set forth in abbreviated form, and it is hoped to place this book in the hands of all medical officers on duty with troops as well as in the hands of civilians in general practice. All this does not mean that the civilian eye physicians of the United States are going to have to do 20% more work, for as the country enters active hostilities and the war costs mount, much of the present non-essential ophthalmologic work will be postponed or entirely eliminated.

It is believed that the same wise policy as in World War I will be adopted of not permitting the teachers to enter active duty. This country will continue regardless of the outcome of the war, and physicians and ophthalmologists will still be required. So the schools for undergraduate as well as graduate teaching must be maintained and the men trained as teachers must continue. Russia made the sad mistake of trying to make doctors by a short cut, but realized the error in time before the medical resources of the country were depleted. Germany, by necessity, is falling into the same course but because of the drain of her manpower, cannot do otherwise. Our professional personnel and facilities must be expended wisely and not to the point of depletion.

Ophthalmological examination of the selective service men is in the nature of a consultation and hence requires a comparatively small amount of ophthalmological time. This is and will be done by civilian oculists as an adjunct to their clinic and private practice and represents their voluntary contribution toward the preparation of the Armed Forces for the defense of the nation.

H. S. G.

AN UNUSUAL CONTEST

In recent years papers and magazines have been literally filled with contests of various sorts, such as writing slogans, providing the last line for a poem, and what not. But a contest was recently called to the attention of the public of an entirely different character.

The popular radio program "Town Hall" announced that they will award $1,000.00 in prizes for the best essays on "What Must We Do to Improve the Health and Well-Being of the American People?"

In the announcement they state that the living

standards of the American people are higher than those of any other country, but "there is yet much that needs to be done to make our people physically, mentally and spiritually fit — fit to meet the challenge that Totalitarianism has hurled at the Democratic way of life. Surely we must give thought at this time to our internal as well as to our external defenses."

In the contest two sets of prizes are to be awarded, one for the adult division and one for the youth group. The contest closes February 1, 1942, and it is quite obvious that many contestants by that time will have submitted essays and that many interesting suggestions will have been made.

The sponsors of this contest are to be commended for awarding prizes not for a slogan or anything that directly advertises some product offered to the American people, but for something which will no doubt develop suggestions which will be of benefit to the people of our country. The health and morale of any nation are among its greatest assets, and where else, except in a Democratic country, would you expect to see the morale as high as has been manifested in the United States since the attack on Pearl Harbor?

PAPERS FOR THE 1942 ANNUAL MEETING

The 1942 annual meeting of the Illinois State Medical Society will be held in Springfield on May 19, 20, 21. Plans are now being made for the scientific programs to be presented before the individual sections and for the general meetings.

Physicians desiring to present papers at this meeting should communicate as early as possible with the officers of the section before which they desire to present a paper. Each section has a chairman and a secretary one residing in Cook County and the other down-state and it is advisable to keep this in mind when writing the section officers.

On account of the fact that the number of papers to be presented before each section will be limited, it is desirable that the best possible program be developed, and one which will appeal to the physicians as a whole rather than to a few members of individual specialties.

KEEP THEM ROLLING!
KEEP THEM FLYING!
PUT MORE MEN IN THE AIR!
BUY U. S. DEFENSE BONDS

In writing to the proper section officer, it is advisable to give the title of the paper you desire to present, then give either an abstract of the paper on other information concerning it, so that the officers will be better able to judge the merits of the paper in considering the advisability of scheduling same on their respective programs.

The personnel of the several section officers is as follows:

Section on Medicine
F. Garm Norbury, Chairman, Jacksonville
M. Herbert Barker, Secretary, 700 N. Michigan Ave., Chicago

Section on Surgery
Loyal Davis, Chairman, 54 East Erie Street, Chicago
J. C. Thomas Rogers, Secretary, Urbana

Section on Eye, Ear, Nose and Throat
Clifton Turner, Chairman, Peoria
G. Henry Mundt, Secretary, 30 N. Michigan Ave., Chicago

Section on Public Health and Hygiene
Walter C. Earle, Chairman, Champaign
Henry C. Niblack, Secretary, 54 West Hubbard St., Chicago

Section on Radiology
E. E. Barth, Chairman, 303 East Superior St., Chicago
Cesare Gianturco, Secretary, Urbana

Section on Pediatrics
Craig D. Butler, Chairman, 715 Lake Street, Oak Park
A. J. Fletcher, Secretary, Danville

Section on Obstetrics and Gynecology
Milton E. Bitter, Chairman, Quincy
Clyde J. Geiger, Secretary, 4753 Broadway, Chicago

Owing to the fact that these section officers responsible for the preparation of the programs for each of the scientific sections are desirous of completing their list of speakers as soon as

possible, it is advisable for all members of the State Medical Society to contact the proper section officer as early as possible in order that they may have the opportunity of getting you on the program for the 1942 annual meeting.

"HISTORY OF MEDICAL PRACTICE IN ILLINOIS"

A few years ago, the Illinois State Medical Society published the History of Medical Practice in Illinois, with the late Lucius H. Zeuch as editor for the volume. Subscriptions were received prior to the publication of this book, at $10.00. It was soon learned that it would be impossible to put all available historical data in one volume, and the Society decided that eventually a second volume would be published, and there would be no additional cost to subscribers.

Soon after the first volume appeared, Dr. Zeuch died, and Dr. Charles J. Whalen, then editor of the Illinois Medical Journal was selected as editor for the proposed second volume. On account of unsatisfactory conditions, it was decided to hold the second volume in abeyance until some future date. Since the death of Dr. Whalen, it was deemed advisable to withhold further action on account of the present emergency.

The Society has on hand at this time, a number of copies of the first volume edited by Dr. Zeuch, which contains much valuable medical historical data, well illustrated, bound in cloth and in perfect condition, which may be procured while the supply lasts, for $5.00. Physicians or libraries desiring to procure a copy of this unusual book, may send their remittance to the Secretary, and a copy will be forthcoming, post paid within a few days.

Address: Harold M. Camp, M.D., Secy.
Illinois State Medical Society,
Monmouth, Illinois.

CAN'T FOOL KIDDIES

The child took a long look at the old man, and asked: "Were you in the ark, Grandpa, when the flood came?"

"No, certainly not, my child," replied the aged man.

"Then why weren't you drowned?" asked the child.

SKIN HAZARDS HIGH IN AIRPLANE MANUFACTURE

An inspection of airplane plants employing over 100,000 men shows that there are many skin hazards in airplane manufacture.

The principal ones are those from cutting oils, thinners, and solvents used in paints and "dopes," plating and rustproofing of metals, fluxes used in welding, and solvents used for cleaning and degreasing.

Preventive measures consisting of wearing of impervious clothing, the use of protective ointments, and the use of nonirritating skin cleansers, in addition to proper general and local ventilation, are described.—*Public Health Reports, August, 1941.*

Studies of occupational dermatoses in aircraft manufacturing plants in California were made by Dr. Louis Schwartz, of the Industrial Hygiene Division, National Institute of Health, in cooperation with Dr. J. P. Russell, of the California State Industrial Hygiene Service. This investigation covered nine plants, employing a total of 87,540 workers, or over 90 per cent of all employees in this industry. The most frequent causes of cutaneous diseases in these plants were found to be cutting and lubricating oils in machine shops; organic solvents in spray painting, doping and degreasing operations; paint and resin coatings on duraluminum; acids and caustics in cadmium-plating and chrome-anodizing processes; zinc chromate paint; fluoride fumes from welding operations; mahogany dust in woodworking shops, and organic acids and solvents in plaster shops. Thirty-six employees with cutaneous lesions were examined, and of this number, 23 were found to have dermatoses of occupational origin.

Plant physicians and safety directors in these establishments were advised as to the necessity for personal hygienic measures, the use of protective clothing and ointments, and the enclosure and ventilation of processes from which irritating gases, vapors or fumes emanate. The excellent cooperation which is being obtained from employers and employees in the adoption of these precautionary measures should result in a marked decrease in the incidence of dermatoses in aircraft factories.—*War Medicine, July, 1941.*

Correspondence

RULES GOVERNING AWARD OF AMERICAN ASSOC. OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

(1) "The award which shall be known as 'The Foundation Prize' shall consist of $150.00."

(2) "Eligible contestants shall include only (a) interns, residents, or graduate students in Obstetrics, Gynecology or Abdominal Surgery, and (b) physicians (with an M. D. degree) who are actively practicing or teaching Obstetrics, Gynecology or Abdominal surgery."

(3) "Manuscripts must be presented under a nom-de-plume, which shall in no way indicate the author's identity, to the Secretary of the Association together with a sealed envelope bearing the nom-de-plume and containing a card showing the name and address of the contestant."

(4) "Manuscripts must be limited to 5000 words, and must be typewritten in double-spacing on one side of the sheet. Ample margins should be provided. Illustrations should be limited to such as are required for a clear exposition of the thesis."

(5) "The successful thesis shall become the property of the Association, but this provision shall in no way interfere with publication of the communication in the Journal of the Author's choice. Unsuccessful contributions will be returned promptly to their authors."

(6) "Three copies of all manuscripts and illustrations entered in a given year must be in the hands of the Secretary before June 1st."

(7) "The award will be made at the Annual Meetings of the Association, at which time the successful contestant must appear in person to present his contribution as a part of the regular scientific program, in conformity with the rules of the Association. The successful contestant must meet all expenses incident to this presentation."

(8) "The President of the Association shall annually appoint a Committee on Award, which, under its own regulations shall determine the successful contestant and shall inform the Secretary of his name and address at least two weeks before the annual meeting."

Jas. R. Bloss, M.D., Secretary.
418 Eleventh Street,
Huntington, W. Va.

ANNOUNCE EXAMINATIONS BY AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., by the entire Board, prior to the opening of the annual meeting of the American Medical Association in Atlantic City, on June 8, 1942.

Application for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1942. It will greatly facilitate the work of the Board if applications are filed as far as possible in advance of the closing date for their receipt.

Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

Candidates for *reexamination* in Part II must make written application to the Secretary's Office before April 15, 1942.

CHICAGO SELECTED FOR 1942 CLINICAL *CONGRESS OF THE AMERICAN* COLLEGE OF SURGEONS

Because of the war, the thirty-second annual Clinical Congress of the American College of Surgeons will be held in Chicago October 19 to 23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College *will be held simultaneously. The programs of* both meetings will be based chiefly on wartime *activities as they affect surgeons and hospital* personnel in military and civilian service.

Sixteenth Annual Meeting

NATIONAL CONFERENCE ON MEDICAL SERVICE

Palmer House, Chicago, Sunday, February 15, 1942

PROGRAM

9:00 a.m. REGISTRATION

9:30 a.m. THE RELATION OF THE PHYSICIAN TO MILITARY, CIVILIAN AND INDUSTRIAL HEALTH

1) Procurement and Assignment of Physicians for Military Service
Sam F. Seeley, M.D., Executive Officer, Procurement and Assignment Service, Washington, D. C.

2) Civilian Defense
a) Civilian
b) Hospitals
c) Emergency Medical Squads
Graham L. Davis, Hospital Consultant, W. K. Kellogg Foundation, Battle Creek, Michigan

3) Industry's Problem in Maintaining Adequate Medical Care
a) Non-Defense Projects
John R. Nilsson, M. D., Chief Surgeon, Union Pacific Railroad, Omaha, Nebraska
b) National Defense Projects
W. D. Norwood, M.D., Medical Director, DuPont Company, Elwood Ordnance Plant, Joliet, Ill. (Tentative)

11:30 a.m. THE ROLE OF THE STATE MEDICAL SOCIETY AND STATE AND CITY DEPARTMENTS OF HEALTH IN NATIONAL DEFENSE

1) State Medical Society
W. P. Wherry, M. D., President Nebraska State Medical Society, Omaha, Nebraska

2) State Department of Health
W. L. Bierring, M.D., State Health Officer of Iowa, Des Moines, Iowa

3. City Department of Health
Herman N. Bundesen, M.D., President, Board of Health, Chicago, Illinois

12:15 p.m. *DINNER*

1:30 p.m. *PRESIDENT'S ADDRESS — Harold M. Camp, M.D., Monmouth, Illinois*

1:45 p.m. REPORT OF NOMINATING COMMITTEE; ANNUAL ELECTION OF OFFICERS; SELECTION OF PLACE FOR 1943 MEETING

2:00 p.m. REJECTED SELECTEES AND THEIR REHABILITATION FOR ACTIVE MILITARY SERVICE

1) *Local and Induction Board Examinations*
Samuel J. Kopetzky, M.D., New York City

2) One Million Rejected; What Percent May Be Salvaged?
a) *By Personal Physician or Dentist Prior to Induction*
George Baehr, M.D., New York City
J. R. Blayney, D.D.S., Chicago, Illinois
b) Following Induction
L. D. Redway, M.D., Ossining, New York

3:30 p.m. THE ROLE OF THE MEDICAL, DENTAL, NURSING SCHOOLS AND HOSPITALS IN ANTICIPATING THE ACCELERATION OF TRAINING

1) *The Need for a Trained Personnel to Care for the Health of the Military*
J. R. Darnall, M.D., Lt. Colonel, Medical Corps, Washington, D. C.

2) Status of Pre-Medic, Medic and Dental Students, Internships and Residencies During *the Emergency*
Leonard Rowntree, M.D., Chief, Medical Division, Selective Service System, Washington, D. C. (Tentative)

3) What the Medcal, Dental and Nursing Schools May Do To Hasten the Graduation of Their Respective Students
Fred C. Zapffe, M.D., Chicago, Illinois (Tentative)

All Physicians and Dentists are cordially invited to attend the conference. As we go to

(Continued on page 88)

press we are informed that general Hershey expects to be present and participate in the discussions.

Harold M. Camp, M.D., President, Monmouth, Ill.
J. O. McCarthy, M.D., Secretary, Omaha, Neb.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY WILL BE HELD DESPITE WAR

To the Editor:

In this time of stress, there should be a definite interest in the welfare of the mothers and babies of the nation. The Committee which is sponsoring the next American Congress on Obstetrics and Gynecology, to be held in St. Louis on April 6-10, 1942, represents the only organization outside of governmental bodies which has attempted to unite the efforts of voluntary and other agencies to carry out the widely disseminated plans for the care of women and children. Opportunity for the presentation of advances in obstetric and gynecologic knowledge will be afforded to the many groups interested in these problems at a nation-wide gathering of this kind. The Directors of the project believe that, notwithstanding the war situation, the Congress should be held at the stated time and are proceeding with their plans to make of this an outstanding gathering. Further details of the program will be communicated as these are made available. Inquiries may be addressed to the Central Office, 650 Rush Street, Chicago, Illinois.

George W. Kosmak, M.D.
Chairman, Committee on
Medical Publicity

INDUSTRIAL PHYSICIAN'S CONVENTION

The American Association of Industrial Physicians and Surgeons, and the American Industrial Hygiene Association will hold their joint Annual Convention in Cincinnati from April 13 to 17, 1942. A program is in preparation in which important medical and hygienic problems associated with the present huge task of American industry will be presented and discussed in clinics, lectures, symposia, and scientific exhibits. The central purpose of the meeting will be to provide a five-day institute for the interchange and dissemination of information on new problems as well as for the consideration of up-to-date methods of dealing with those that are well known. The industrial physicians have taken responsibility for the program of the first two and one-half days and the hygienists for the remainder of the five days, but most of the subjects chosen for discussion will be of interest not only to physicians, but equally so to industrial engineers, and executives.

WOMAN'S AUXILIARY NOTES

Auxiliary Members Greetings: —

At a time like this when so many difficulties confront us, we should more than ever before give deep thought to our organization. It is of vital importance to organize, to work together and exert united strength to this great organization, The Woman's Auxiliary to the Illinois State Medical Society.

We, as an organization, are measuring up well, but the goal has not been reached. We need new counties and new members to increase our membership which is below par for the number of years we are organized.

I earnestly urge the help of each individual member to assist the district councilor to bring in new members.

To all disbanded counties, may I extend a hearty welcome back to the Organization where you may assist with the constructive work which is assigned to us by the Medical Profession and to our Benevolence Fund.

In closing, I ask you one and all to send in any suggestions you may have in mind, or any questions to membership.

Sincerely,
Hilda B. Wanninger,
Organization Chairman
Woman's Auxiliary to the
Illinois State Medical Society.

COUNTY NEWS

Several members of the Woman's Auxiliary to the Bureau County Medical Society met at a dinner Nov. 11th at the Valley Hotel, Spring Valley.

The program following the dinner was held at the home of Mrs. R. E. Miltenberger. The speaker for the evening was Miss Perlman, of the Hygienic Institute in Peru. Miss Perlman whose work is limited to Public Health service in maternity and child health care, dwelt on the subject of school hygiene and how to prepare the child for healthful living.

A meeting of the Henry County Medical Auxiliary was held at the home of Mrs. J. C. Williamson, Nov. 13th in Toulon. Mrs. D. E. Meier reviewed an article from Hygeia on "Health for Women Over 40" which was followed by a discussion on Nutrition.

The Laity Day dinner sponsored by the Vermilion Woman's Auxiliary was held in the St. James Community room, Oct. 29th. Dr. Bauer, director of the Bureau of Health Education of

the American Medical Society, in addressing the audience stressed that Health Education will save us from many of the foolish and harmful things we do. Everyone needs health education to insure their fitness at all times and to protect them from all kinds of fallacy as well as the health racketeer abroad today.

The Regional meeting of the Auxiliaries to the Illinois State Medical Society was held at the Leland Hotel Oct. 14th. Mrs. Rex Campbell, Mrs. D. Sirca, Mrs. William J. Morganson and Mrs. A. T. Kwedar, members of Sangamon County Auxiliary were in charge of the plans for the meeting. Mrs. Harry Otten, Springfield, State President, welcomed the vistors and guests. Mrs. W. J. Wanninger, Chicago, President-Elect, of the State, outlined plans for the Organization. Dr. Frank P. Hammond spoke on "All Out Aid to Medicine."

The Woman's Auxiliary to the Peoria Medical Society held a meeting Tuesday, Dec. 2nd, at the University Club. After dinner Mrs. Cable of the Home Service department of the Light Company spoke on "Different Types of Foodstuffs." Mrs. Maxine Pollak reviewed Hans Zinnsser's book "As I Remember Him."

Mrs. Harry Otten, President
Mrs. Charles W. Stigman,
Press & Publicity

SQUIBB INTRODUCES PRODUCT FOR SIMULTANEOUS IMMUNIZATION AGAINST DIPHTHERIA AND WHOOPING COUGH

The first preparation for simultaneous immunization against diphtheria and whooping cough to be made available commercially in this country is now offered by E. R. Squibb & Sons, New York, in Diphtheria Toxoid Alum Precipitated — Whooping Cough Vaccine Combined Squibb. Each 1 cc. of the combination product contains a full immunizing dose of Diphtheria Toxoid Alum Precipitated and 10,000 million killed Bacillus (hemophilus) pertussis.

This new product possesses the advantage of convenience and economy, and in addition, with a combined product of this type, the antibody responses of the two antigens tend to complement each other. The reactions to the combined antigens are apparently no more frequent or severe than those following the use of diphtheria toxoid alum precipitated.

To be on the safe side, it is suggested for the present that three or four injections of 1 cc. each of Diphtheria Toxoid Alum Precipitated — Whooping Cough Vaccine Combined be given at monthly intervals. This would confer a high degree of immunity to diphtheria and should afford adequate protection against whooping cough. Immunization is recommended for all children over six months of age.

Diphtheria Toxoid Alum Precipitated — Whooping Cough Vaccine Combined Squibb is supplied in 5 cc. vials containing sufficient vaccine for five injections.

A.P.M.A. PRESENTS AWARD TO DR. SPIES

At the mid-year meeting of the American Pharmaceutical Manufacturers Association in Washington, D. C. in December, an award of distinction was presented to Dr. Tom Douglas Spies, "in recognition of his outstanding contributions to our knowledge of the value of the B-complex vitamins, particularly nicotinic acid, thiamine and riboflavin, as pharmaceuticals important in the treatment of disease."

The presentation was made by Dr. Morris Fishbein, Editor of the Journal of the American Medical Association.

Dr. Spies is Associate Professor of Medicine, University of Cincinnati School of Medicine; Director of the Nutrition Clinic at the Hillman Hospital of Birmingham, Ala.; member of the Council on Foods of the A.M.A.; member of subcommittee on nutrition of the Committee on Medicine of the National Research Council.

Each year the A.P.M.A. presents an award to a scientist who has made a fundamental contribution to public health in the field of drug therapy.

In addition to the award, addresses were made by Dr. Harold G. Moulton, President of the Brookings Institution, Washington, D. C. on "Post-War Problems;" Hon. Paul V. McNutt and Dr. R. P. Herwick on "The Federal Food, Drug and Cosmetic Act;" a National Defense Session introduced by Charles Wesley Dunn.

The eleven ages of man can be expressed in menu form as follows:

1. Milk.
2. Milk and bread.
3. Milk, bread, eggs and spinach.
4. Oatmeal, bread and butter, green apples and all-day suckers.
5. Ice cream soda and hot dogs.
6. Minute steak, fried potatoes, coffee, and apple pie.
7. Bouillon, roast duck, scalloped potatoes, creamed broccoli, fruit salad, divinity fudge, and demi-tasse.
8. Pâté de foie gras, weiner schnitzel, potatoes Parisienne, egg plant a l'opera, demi-tasse, and Roquefort cheese.
9. Two soft-boiled eggs, toast, and milk.
10. Crackers and milk.
11. Milk.

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

We have been engaged in war since December 7, 1941. In one day we became a united people with a single purpose in mind. Isolationists joined the ranks at once and political bickering ceased.

All of our economics are being marshalled with a single thought. During the world upheaval, and in the midst of many domestic problems, we have been striving to maintain free enterprise as a fundamental of democracy and freedom. Today, and rightfully so, free enterprise has ceased, as a war measure to bring all of our resources quickly and efficiently to the prosecution of this war. Free enterprise is now engaged in a determination to fight for our very freedom, and the freedom of all nations crushed by the Axis powers. This is being done in a democratic way. The government has placed in command men of proven ability and given them authority to mobilize our vast resources. They are not to be hampered by politics.

Labor is taking its responsibility as seriously and patriotically as the forces going to combat. Mistakes will be made; men will be placed in positions they are not qualified to fill, and it will take time to weed them out. Such a tremendous organization cannot be assembled in a short period of time, without this happening. Every American must keep in mind that mistakes will cost lives and money. We have a right to hold those in high positions responsible and we must retain the right of responsible and patriotic expression. Our expression should be guarded because the task is great and it is human to err.

The medical profession assumes its responsibility to the armed and civilian forces. The program of medical education and post graduate training over a period of years makes it possible to immediately give to our armed forces the highest type of medical service. Many of the best trained men in our profession are on the way. The forces of science are lined up to kill and the forces of science are lined up to save.

At the end of this struggle we are looking for freedom and democracy for ourselves and the rest of the world. We are looking for a just peace for all peoples and we are resolved that it shall not occur again in twenty years.

The return of free enterprise and all of our civil liberties at the conclusion of the war is our guarantee of the ability of a democracy to function in the midst of world conflict and upheaval.

Dr. R. K. Packard,
Chairman
Committee on Medical Economics

FOCI OF ATTENTION

The wise clinician spends more time trying to understand the cause of disease than he does in seeking to make himself familiar with the drugs reputed to cure it. In other words, he is less concerned with medicaments than he is with the nature of the infective or other agent of disease, how it gains access to or is enabled to have an effect on the body, and what changes it produces in the body tissues.—*Editorial, Australian Journal of Medicine.*

BETTY'S OBSERVATION

Little Betty, returning from school one afternoon, said: "Johnny Wilson's examination papers were so good that teacher keeps them on her desk to show visitors."

Asked about her own, she had to confess that they weren't good.

"But why aren't your's as good as Johnny's?" her mother asked. "You have the same opportunities."

"I know, mother," said Betty, "but Johnny Wilson comes from a very bright family."

Medicine and National Defense

For the duration of the war, it is the desire of those responsible for the publication of this Journal, to cooperate in every way possible with the Government in the "all out for victory" program. This department will carry each month those articles pertaining to medical problems in connection with National Defense which are received from Governmental Agencies, as well as some from the American Medical Association and its Journal. It is hoped that each reader of the Illinois Medical Journal will read these articles regularly, as it is the desire of the Editor, Editorial Board and others responsible for the publication of the Journal to give all possible information each month on this important subject.

RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

I. *Medical Students.* A. All students holding letters of acceptance from the Dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll *with the Procurement and Assignment Service* for other assignment.

C. All junior and senior students in good *standing in medical schools, who have not done* so, should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H.V. (P) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R.O.T.C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least 12 months of internship.

II. *Recent Graduates.* Upon successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States

Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H.V. (P), U. S. Navy Reserve, should make immediate application to the Commandant of his Naval District for commission as Lieutenant (J.G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant, (J.G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. *Twelve Months Internes.* All internes should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as Lieutenant (J.G.), United States Navy or Navy Reserve. Upon completion of 12 months interneship, except in rare instances where the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service Acts.

IV. *Hospital Staff Members.* Internes with more than 12 months of interneship, assistant residents, fellows, residents, junior staff members, and staff members under the age of 45, fall within the provisions of the Selective Service Acts which provide that all men between the ages of 20 and 45 are liable for military service. All such men holding Army commissions are subject to call at any time and only *temporary deferment* is possible, upon approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only upon approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the Executive Order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial, and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available to the Army, Navy, governmental, industrial, or civil agencies requiring their services for the duration of the war.

V. *All Physicians Under Forty-Five.* All male physicians in this category are liable for military service and those who do not hold commissions are subject to induction under the Selective Service Acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (a) over 45, (b) physicians under 45 who are physically disqualified for military service, (c) women physicians, and (d) instructors and those engaged in research who do not possess an M.D. degree whose utilization would make available a physician for military service.

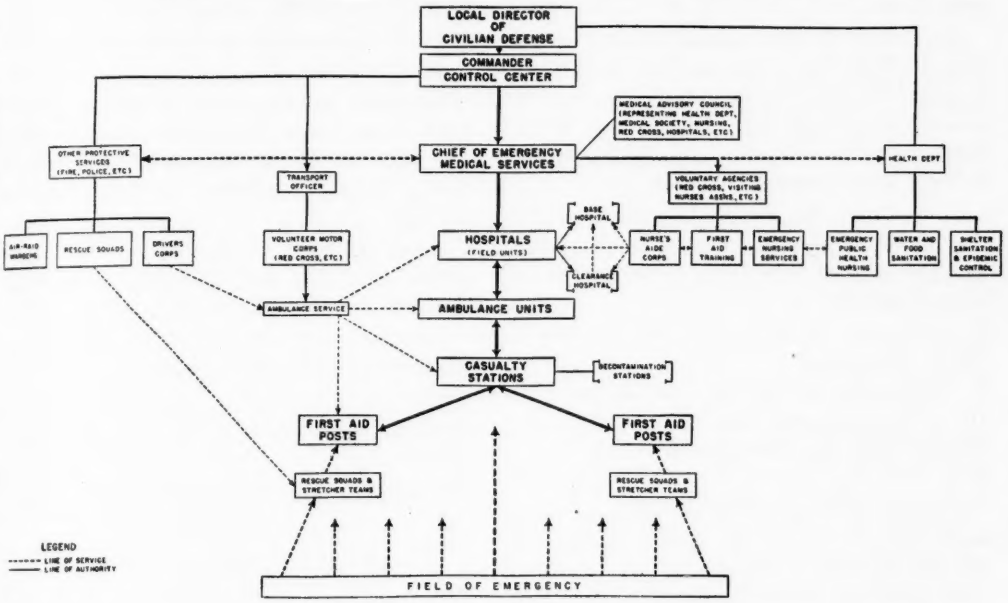
Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. *All Physicians Over Forty-Five.* All physicians over 45 will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those Agencies.

The maximal age for original appointment in the Army of the United States is 55. The maximal age for original appointment in the Naval Reserve is 50 years of age.

All inquiries concerning The Procurement

ORGANIZATION OF LOCAL EMERGENCY MEDICAL SERVICES



and Assignment Service should be sent to The Executive Officer, 5654 Social Security Building, 4th and Independence Avenues, SW, Washington, D.C., and not to individual members of the Directing Board or of committees thereof.

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CIVILIAN DEFENSE

The Medical Division of the U. S. Office of Civilian Defense has issued the second bulletin of its official series of instructions for emergency medical care of the civilian population in war emergencies, "Equipment and Operation of Emergency Medical Field Units." The bulletin explains the duties of local chiefs of Emergency Medical Service, describes the operation of Casualty Stations and First Aid Posts and lists the minimum equipment for Emergency Medical Field Units, organization of which was described in the first bulletin, "Emergency Medical Service for Civilian Defense," issued in August, 1941.

The Office of Civilian Defense recommends that all defense councils adopt the plans as set forth in these bulletins. Uniformity will make it possible for adjacent communities to pool or exchange their resources, and it is also desirable because of priorities in materials and manufactures. All equipment recommended conforms with that of the Medical Department of the U. S. Army, the bulletin points out.

The field casualty service projected by the Medical Division of the Office of Civilian Defense will be made up of Emergency Medical Field Units derived from hospitals in the community. These units will work in Casualty Stations set up at a predetermined site some distance from the scene of a disaster. The Casualty Stations will care for persons with minor injuries and those suffering from nervous shock or hysteria until they may return to their homes or to temporary shelters. An important part of the work of these stations will be to keep records of patients treated.

From the Casualty Stations medical teams may be sent closer to the disaster to set up First Aid Posts in which severely injured persons may receive emergency treatment before they are sent to hospitals. Here casualties will be classified according to the seriousness of the injuries and directed to Casualty Stations or hospitals as their condition requires. The instructions emphasize the importance of tagging all casualties immediately, giving all possible information as

to their identity, their injuries and the treatment given.

Equipment for the medical teams who will work in First Aid Posts has been worked out to provide in easily portable form the essentials for emergency treatment. Replacements will be furnished by Casualty Stations, which will have on hand larger stores of supplies.

To facilitate the sorting of casualties when they arrive at hospitals, the following symbols have been devised to be drawn on the forehead of injured persons:

U — Urgent — requiring priority attention
TK — Tourniquet
T — Indicating tatanus antitoxin has been given
H — Internal hemorrhage
M¼ — Indicating Morphine gr. ¼ or
M½ — Gr. ½ given

Casualty Stations will have on hand bulky equipment that cannot be carried by the first aid groups, such as traction splints, stretchers, collapsible cots, blankets and a reserve supply of drugs and dressings which may be issued to first aid posts as needed.

A tag has been designed which includes information as to identity and provides space for recording diagnosis, treatment and disposition of the case. The tag is to be filled out at the First Aid Post and will be attached to the patient before he is transferred to a hospital.

The local Chief of Emergency Medical Service, who functions under the administrative authority of the local director of civilian defense, has fifteen specified duties, explained in detail in Bulletin No. 2. Briefly, these officers' duties will be:

Integrate official and voluntary organizations which are to participate in the medical activities into the comprehensive community program.

Help organize Emergency Medical Field units as described in Bulletin No. 1.

Select sites for Casualty Stations.

Make a map locating hospitals, Casualty Stations, storage depots.

Plan transportation service for casualties and for medical personnel.

Cooperate with local defense authority in arranging drills of Emergency Medical Field Units in cooperation with other civilian defense units.

Make inventory of hospitals and other buildings in adjacent territory to which patients might be evacuated.

Assist in planning courses for volunteers in medical activities.

Stimulate recruitment of volunteers for the nurses' aide courses of the American Red Cross and help in placing these aides in hospitals, clinics, health departments and field nursing services.

Assist the local Civilian Defense Volunteer Office in training and placement of volunteers in health and medical agencies.

Stimulate and guide first aid training through the Red Cross and other agencies.

Stimulate and guide organization of First Aid detachments in industrial plants and similar establishments.

Collaborate with health authorities in protective measures against sanitary hazards.

Collaborate with authorities in plans for evacuation, with particular attention to medical needs of the population.

Keep the community and the participating groups informed of plans and activities.

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SANITARY ENGINEERING IN CIVILIAN DEFENSE

Ralph E. Tarbett, Senior Sanitary Engineer, U. S. Public Health Service, is Chief Sanitary Engineer of the Medical Division of the Office of Civilian Defense. Mr. Gordon E. McCallum, Sanitary Engineer, U. S. Public Health Service, has been commissioned in the Public Health Service Reserve and assigned to the Third Civilian Defense Region (Pennsylvania, Maryland, District of Columbia and Virginia) plus West Virginia and Ohio. Mr. McCallum is stationed in Washington. Mr. John H. Brewster, Troy, N. Y., at one time with the Indiana and later the New York state health departments, has also been commissioned in the Public Health Service and assigned to the First and Second Defense Regions.

The National Technological Civil Protection Committee, an advisory group to the War Department, has agreed to serve in the same capacity to the Medical Division of OCD, in matters of public health engineering. Mr. Walter Binger of New York, representing the American Society of Civil Engineers, is chairman of this commit-

tee. Other members represent other national engineering and related organizations.

The sanitary engineering section will work through State Defense Councils with State health departments in planning to meet the problems that may arise due to belligerent action. Of these, the maintenance of a continuous supply of safe water is of first importance.

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BLOOD BANKS FOR CIVILIAN DEFENSE

The Medical Advisory Board of the Office of Civilian Defense held a joint meeting with the Regional Medical Officers at the national headquarters in Washington, Dec. 8-9, 1941. Mayor LaGuardia, U. S. Director of Civilian Defense, addressed the group briefly, urging action on two counts: organization of emergency medical field units and designation of field casualty stations in the target areas on both coasts.

The medical defense officials decided that it is necessary that blood banks, as well as collecting stations for plasma and serum, similar to those developed by the American Red Cross for the Army and Navy, be established for civilian use. It was pointed out that a supply of whole blood and of plasma and serum for use among civilians is essential, as the armed forces will not be able to release any of their supply under conditions of actual warfare.

Dr. Wallace D. Hunt, medical officer for the Ninth Civilian Defense Region with headquarters in San Francisco, reported that the important cities of the West Coast, especially those in California, had well developed disaster services and that these were being rapidly integrated into the comprehensive civilian defense program.

Members of the Medical Advisory Board who attended the meeting were Drs. George Baehr, New York, chairman of the board and chief medical officer of the Office of Civilian Defense; Robin C. Buerki, Philadelphia; Elliott C. Cutler, Boston; Oliver B. Kiel, Wichita Falls, Texas; Albert McCown, Washington, and Huntington Williams, Baltimore. Dr. Fred Rankin, Lexington, Ky., was unable to be present.

Regional medical officers present, in addition to Dr. Hunt, were Drs. Allan M. Butler, Boston, first civilian defense region; H. Van Zile Hyde, New York, second region; W. Ross Cameron, Baltimore, third region; Judson D. Dowling, Atlanta, Ga., newly appointed to the fourth region; William S. Keller, Columbus, Ohio, fifth region; and Witten B. Russ, San Antonio, Texas, eighth region.

Others present included Miss Mary Beard, director of nursing service, American Red Cross; Dr. James A. Crabtree, executive secretary, Health and Medical Committee of the Office of Defense Health and Welfare Services; Dr. Thomas Parran, Surgeon General, and Dr. Erval R. Coffey of the U. S. Public Health Service and Dr. Martha Eliot of the U. S. Children's Bureau.

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PHYSICIANS NEEDED FOR RED CROSS BLOOD PROCUREMENT PROGRAM

The expansion of the blood procurement program under the auspices of the American Red Cross will require the services of physicians in a full-time capacity. In the near future there will be published in this section a statement as to the number of physicians required, the age group, the professional qualifications and a list of those to whom they will be asked to make direct application. The physicians wanted for this service will be preferably those over 45 years of age or, if under 45 years of age, not physically fit for the armed services.

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CANCEL DEFERMENTS OF RESERVE OFFICERS WHO ARE FEDERAL EMPLOYEES

The Secretary of War issued the following instructions, January 5:

1. In September 1940 the War Department promulgated a policy permitting Reserve officers who were employed in key civilian positions in the various governmental departments and agencies to be granted unlimited deferments from military duty by being transferred to the War Department Reserve Pool. Because of the present state of war, these deferments will be canceled, effective Jan. 15, 1942, and all affected Reserve officers will be considered available for active duty after notice of relief from the War Department Reserve Pool by this office.

2. Requests for limited deferments should be submitted in triplicate, addressed to the Adjutant General, Washington, D. C., and signed by the responsible head of the department or agency making the request. Such requests will receive favorable consideration, to the extent

that military necessity permits, in exceptional cases only. No general or permanent deferments will be authorized. Requests for deferment submitted after active duty orders have been issued cannot be considered.

3. The following information should be furnished with each request for deferment: (*a*) Name of the officer in full (initials should not be used). (*b*) Rank and branch in which commissioned. (*c*) Home address as last reported to the War Department. (*d*) Date of birth. (*e*) Title of present position (governmental payroll designation). (*f*) Salary or wages. (*g*) Civil service rating, if any. (*h*) Length of time in present position. (*i*) Total time in the employ of the present department or agency. (*j*) Total time in federal employ. (*k*) Detailed description of present duties. Include information as to the availability of a replacement or the time required to train one. (*l*) Length of deferment desired (until ———— (give date).

By order of the Secretary of War:

E. S. ADAMS,
Major General, the Adjutant General

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EMERGENCY MEDICAL EQUIPMENT

The Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York, sent eight emergency medical field sets, January 2, to medical directors of the Second Civilian Defense Region, comprising New York, New Jersey and Delaware. Each set consists of two portable cases equipped with instruments and supplies, which will be placed in hospitals and first aid posts in various locations, whence they can be readily transported to potential points of disaster. Plans are being made by the committee for a nationwide campaign to provide quantities of these sets in each of the nine civilian defense regions set up by the Office of Civilian Defense; it is estimated that seven hundred and twenty-four sets will be required to meet the needs of New York City alone.

★ ★

The pictures of patients with tuberculosis in our medical textbooks are those of emaciated and cachectic individuals when they should be those of apparently healthy specimens. It is in these apparently healthy specimens that disease is so often found and causes so much destruction. A. M. Dietrich, M.D., Del. Med. Jour., Aug., 1941.

SAY OTHER TREATMENTS FOR ERYSIPELAS MADE OBSOLETE BY SULFONAMIDE DRUGS

The prompt response of erysipelas to sulfanilamide or one of its derivatives make this the treatment of choice and renders other treatment measures obsolete, Robert E. Shank, M.D.; Richard W. Maxwell, M.D., and George S. Bozalis, M.D., St. Louis, declare in *The Journal of the American Medical Association* for December 27 in a report on the results they obtained in so treating 165 patients with this disease.

Erysipelas is a common bacterial infection of the skin caused by the hemolytic streptococcus. It is characterized by intense itching, burning and inflammation of the skin, which is swollen and painful. The condition is contagious. The authors explain that prior to the introduction of sulfanilamide, methods of treating the disease were notably unsatisfactory. Describing the results they obtained with their patients, they say:

"In no instance was the lesion ever seen to spread after the first thirty-six hours on chemotherapy (drug treatment). A small subcutaneous (under the skin) abscess was the only complication. There were no recurrences.

"In 84 patients an elevated admission temperature had returned to normal after twenty-four hours and remained normal. In 16 cases fever persisted over forty-eight hours but in no instance longer than four days.

"Sulfanilamide was found to be fairly toxic, particularly for the aged patients in this series. The new drug sulfabenamide, used experimentally for 34 patients, produced equally good results, without the usual toxic effects so common to the sulfonamide group of drugs. . . .

"There were 5 deaths in the group of 165, a mortality figure of 3 per cent. This compares with mortality rates of from 8 to 12 per cent before the use of sulfanilamide. . . . Patients over 60 years of age, with chronic heart and kidney disease, furnished 4 of the 5 fatalities among this group."

If somebody shoved me into the ring and up against Joe Louis, I wouldn't wait for him to sock me. I'd lay down and take the count — and stay there until the referee said the fight was over. And influenza (and tuberculosis, too) the same way. Paul B. Brooks, M.D., Health News, Feb. 17, 1941.

Original Articles

SENILE ECTASY

A Clinical Study of the Aging Human Heart
(Observations on Four Hundred Patients)

ROBERT S. BERGHOFF, M.D., F.A.C.P.
Clinical Professor of Medicine
Loyola University School of Medicine
Director of Heart Station-Mercy Hospital
Loyola University Clinics, Chicago
ANGELO S. GERACI, M.D., A.C.P.
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Loyola University School of Medicine
Associate Director of Heart Station
Mercy Hospital, Loyola University Clinics
DONALD A. HIRSCH, M.D., A.C.P.
Clinical Instructor, Department of Medicine
Loyola University School of Medicine
Assistant Director of Heart Station
Mercy Hospital, Loyola University Clinics
CHICAGO

On February 20, 1936, five and one-half years ago, my associates and I organized the Heart Station at Mercy Hospital-Loyola University Clinics, Chicago, to conduct a detailed study of a large group of ambulatory cardiacs, in connection with the Outpatient Department of the Hospital. We established as our objective an investigation of the broad and, we felt, undeveloped problem of heart disease in the later decades of life. At the beginning, we charted no special course, simply endeavored through carefully taken histories, physical examinations, routine X-ray and electrocardiograms to gather as much information as possible, record our findings, summarize them, and then arrive at logical conclusions. Our work is still progressing, and while our ultimate aim is one thousand senile patients, we have accumulated such a vast amount of material, much of which we consider interesting and important, that we are herewith submitting it in the nature of a preliminary report. At the conclusion of the first year of this work we began to look for the answer to a group of important questions; to wit:

I. What are the most common types of heart disease encountered in human beings in the age group of fifty to eighty years?

II. What are the most common and the earliest symptoms in this age group?

III. What are the most common and consistent physical signs?

IV. Which antedates which?

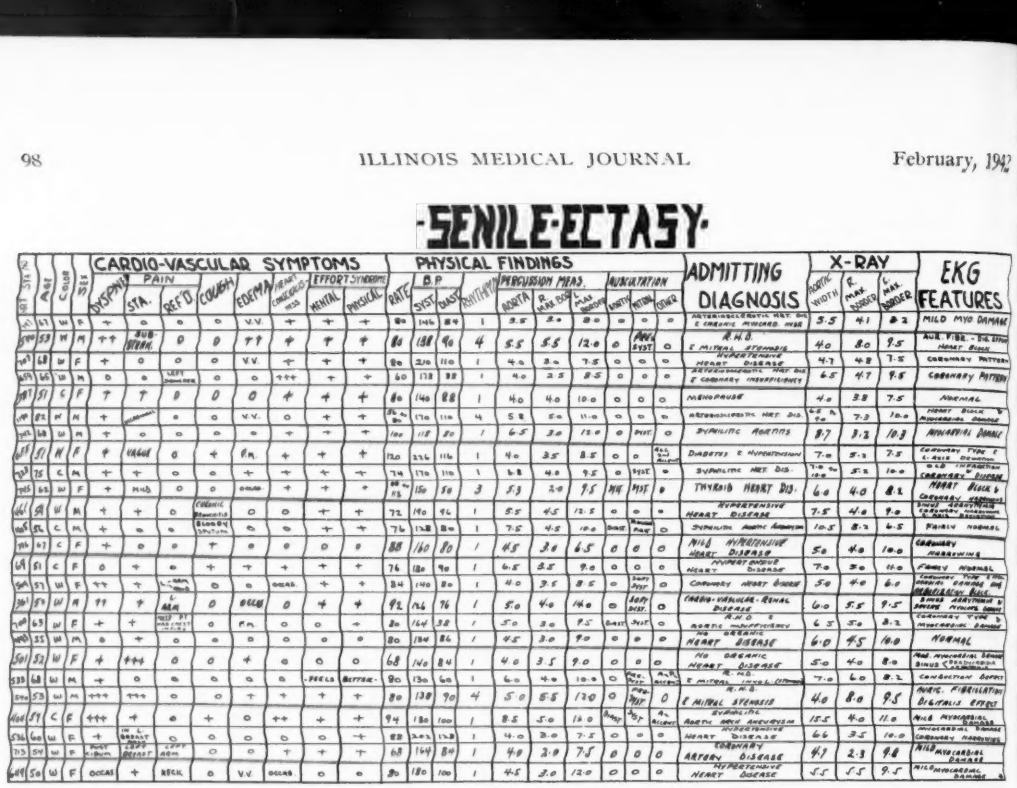
V. How much diagnostic help is afforded by the X-ray? By the electrocardiogram?

VI. How accurate and important are percussion measurements?

VII. What is the "Immediate Prognosis" in the various individual types of heart disease encountered in senile individuals?

Our catechism did not end with these seven questions, but we believe they furnish ample material for this report. We do not maintain that we have the complete and final answer to any one of them, but our figures, observations, and conclusions, on an admitted formidable group of four hundred patients, are at least illuminating.

We are incorporating only one of our "Work Sheets" to establish the detail of information gathered on each individual patient.


-SENILE-ECTASY-
CARDIO-VASCULAR SYMPTOMS
PHYSICAL FINDINGS
ADMITTING DIAGNOSIS
X-RAY
EKG FEATURES
NOTES & EXPLANATION:
DYSPNEA — ONE PLUS — MILD—AFTER MODERATE PHYSICAL EFFORT.
TWO PLUS — MORE SEVERE — AND WHILE AT REST.
THREE PLUS — MOST SEVERE — NOCTURNAL IN TYPE.
COUGH — ON CARDIAC BASIS ONLY.
HEART CONSCIOUSNESS
ONE PLUS INCREASED RATE.
TWO PLUS INCREASED FORCEFULNESS.
THREE PLUS COMBINATION of ONE & TWO.
FOUR PLUS ARHYTHMIAS.
EDEMA — PITTING EDEMA OF ANKLES—A.M. or P.M.
V.V.= VARICOSE VEINS.
RATE & B.P. — COMPUTED WHILE PATIENT IS SITTING & AT REST.
RHYTHM
ONE NORMAL SINUS RHYTHM.
TWO SINUS ARHYTHMIA.
THREE EXTRA SYSTOLES
FOUR AURIC. FIBRILLATION
FIVE HEART BLOCK (ALL DEGREES).
DIAGNOSIS-AMERICAN HEART ASSOCCIATION CRITERIA.
PERCUSSION — AORTA — ITS WIDTH IN 2nd INTERSPACE
R & L MAX. BORDERS — FROM MIDLINE TO MAXIMUM LATERAL BORDERS.
MEASUREMENTS — ARE RECORDED IN CM.

In summarizing these statistics, we will confine ourselves to answering the questions asked at the beginning of our problem.

Question No. I. What are the most common types of heart disease encountered in the age group of fifty to eighty years?

The charts supplied the following information:

	Patients	
Total number of patients studied	400	100%
Divided into:		
Hypertensive Heart Disease	113	28.2%
Arteriosclerotic heart disease		
Myocardial involvement predominating	72	18.0%
Coronary involvement predominating	52	13.0%
**Syphilitic heart disease*	81	20.2%
Rheumatic heart disease		
Mitral involvement	42	10.5%
Aortic involvement	8	2.0%
Thyroid heart disease	10	2.5%
Cardio-vascular-renal disease	6	1.6%
No organic heart disease	13	3.2%
Color Distribution:		
White patients	287	71.8%
Colored patients	113	28.2%

Sex Distribution:		
Male	169	42.3%
Female	231	57.7%
Positive X-Ray Findings Were Shown In:	292	73.0%
Positive EKG Findings Were Shown as Follows:		
Positive myocardial changes	252	63.0%
Positive coronary changes	148	37.0%
Age Distribution:		
Between 50-55 years	126	31.5%
Between 56-60 years	104	26.0%
Between 61-65 years	86	21.5%
Between 66-70 years	55	13.7%
Between 71-75 years	24	6.0%
Between 76-80 years	2	0.5%
Over 80 years	3	0.7%

*This relatively high percentage of syphilitic heart disease is probably due to the large number of colored patients included in this survey.

Comment: It is, in our opinion, not coincidental but highly significant that Rheumatic Heart Disease constituted only 12½ per cent, and these figures strongly suggest that Rheumatic Heart Disease has a life expectancy which is distinctly curtailed.

Question No. II. What are the most common and the earliest subjective cardiac symptoms in this age group?

The answer must admit of wide variations, depending upon the specific type of heart disease, the degree of involvement, and the chamber of the heart primarily concerned. However, breaking the question down to various types of heart disease, our charts reveal the following as the earliest and most common symptoms:

1. Arteriosclerotic Heart Disease
   a. Heart Muscle Involvement
      a' Dyspnea 100%
      b' Heart Consciousness 65%
   b. Coronary Involvement
      a' Pain 84.3%
      b' Dyspnea 62.5%
2. Hypertensive Heart Disease
   a. Heart Consciousness 74.6%
   b. Dyspnea 74.6%
3. Syphilitic Heart Disease
   a. Dyspnea 82%
   b. Pain 88%
4. Inactive Rheumatic Heart Disease
   a. Heart Consciousness 45%
   b. Dyspnea 78%
5. Thyroid Heart Disease
   a. Heart Consciousness 83.3%
   b. Dyspnea 66.6%
6. Cardio-Vascular-Renal Disease
   a. Dyspnea 100%
   b. Pain 100%

Comment: We should like at this point to theorize a bit, purely from a clinical standpoint, on the interesting subject of Coronary Disease. We believe that Coronary Disease as encountered in this age group (fifty to eighty years) is, in the vast majority of instances, part and parcel of the process of senescence, that it goes hand in hand with heart muscle deterioration, that accordingly it belongs to and occurs most frequently in the 5th, 6th, 7th, and 8th decades and not, as quite commonly argued, in the earlier decades of life. It is the common pottage of senile decay, and almost constantly associated with minor symptoms and signs of myocardial wear.

We are convinced that we encounter, clinically, three quite distinctly differentiable types or stages of Coronary Disease:

1. *"Angina of Effort"* — Patients who admit the episode of precordial pain or distress with classical reference into the jaws or down the arms; brought on by physical effort or mental excitation; of brief duration, relieved quickly and effectively by coronary dilators; with no subsequent symptoms or signs and no immediate incapacitation.

2. *"Coronary Insufficiency"* — Frequent and prolonged attacks of coronary pain or distress, with or without an exciting instigating factor, lasting from minutes to hours; partially but not completely relieved by dilators; with no consistent electrocardiographic variables; and followed by no demonstrable symptoms or signs of myocardial invasion.

3. *"Coronary Occlusion with Myocardial Infarction."* With or without an inciting factor, but always associated with unmistakable symptoms and signs of shock, and electrocardiographic evidence of heart muscle invasion. We are not willing to even theorize on the mechanism or the differential pathology of these three types in view of the mass of evidence accumulating indicating that even "Angina of Effort" may have as its pathological background, occlusion of a coronary trunk.

Question No. III. What are the most common and consistent physical signs?

The answer to that question, too, must be broken down since the earliest and most consistent physical signs in heart disease past fifty, will depend upon the type of the disease. Our charts provide the following information:

1. Arteriosclerotic Heart Disease
   a. Altered configuration 65.2%
   b. Variations in rate 24.5%
   c. Variations in rhythm 20.0%
2. Hypertensive Heart Disease
   a. Altered configuration 81.7%
3. Syphilitic Heart Disease
   a. Altered configuration 94.0%
   b. Systolic and later diastolic basal murmurs 62.0%
4. Rheumatic Heart Disease
   a. Altered configuration 77.0%
   b. Murmurs 92.0%
5. Thyroid Heart Disease
   a. "Normal" configuration 84.0%
   b. Increased rate 100.0%
   c. Alterations in rhythm 66.0%

Comment: We should like at this point to stress the diagnostic importance of "Altered Configuration" of the heart in all types of heart disease encountered in this age group. We are convinced that the information obtained through careful percussion and verified by the X-ray is more helpful diagnostically than that afforded

by auscultation. Our work of the past five and one-half years has also given us some interesting data concerning the accuracy and reliability of percussion in determining the heart's borders, as compared with the X-ray. In deciding upon X-ray procedure in so large a graup of individuals, we had the choice of the following three:

1. Teleradiography (Two-meter plates)
2. Orthodioscopy
3. Telefluoroscopy (Two-meter tracings)

The first is accurate but expensive; the second is accurate but time consuming; so we decided upon the third. We constructed a fluoroscopic screen at seventy-two inches from the tube, and by drawing an image of the heart and the aorta, together with the important anatomical landmarks of the chest, on the fluoroscopic screen in the anteroposterior position, and later in the lighted room transferring that tracing to thin transparent paper, we had an economical and permanent record of the heart, as accurate approximately as a two-meter plate. A careful survey of four hundred such tracings, and a comparison with previously recorded percussion measurements leaves us with the following impressions:

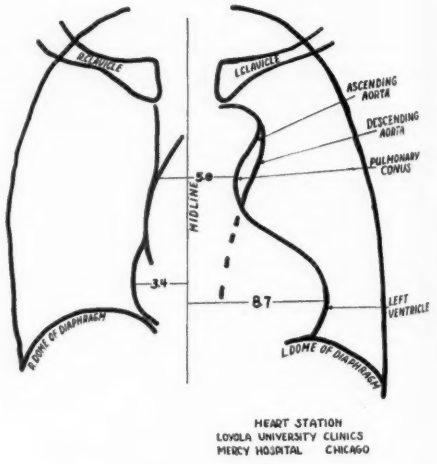
1. Percussion, carefully done by one with average experience, is roughly accurate. The right and left cardiac borders and the aortic width, one or all, may be off on the average one centimeter, considerably more of course in obese individuals. The direction of the error is usually on the plus side; that is, percussion measurements are larger than those elicited by telefluoroscopy.

2. In a negligible percentage (less than two per cent) the percussion measurements were so unsatisfactory that the proper configuration of the heart was missed entirely.

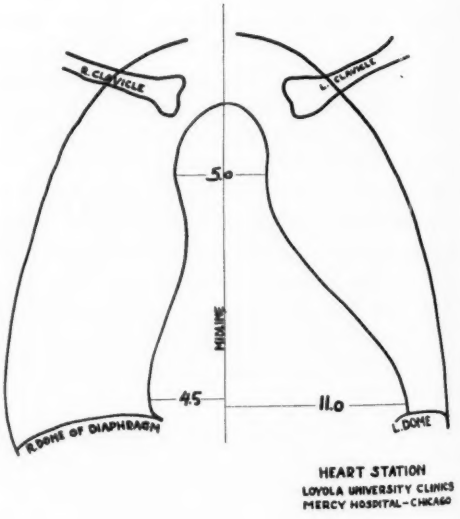
3. For the instruction of medical students in the art of percussion, and as an incentive to all men in the general practice of medicine, we recommend this telefluoroscopic check on routine cardiac measurements.

We should like to enumerate briefly the major alterations in the configuration of the heart in the various types of heart disease under consideration, as portrayed by the following tracings:

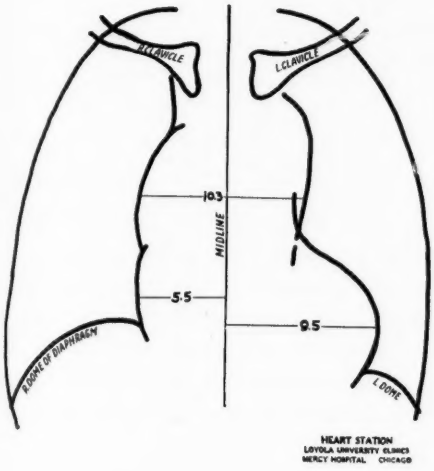
AORTIC SCLEROSIS



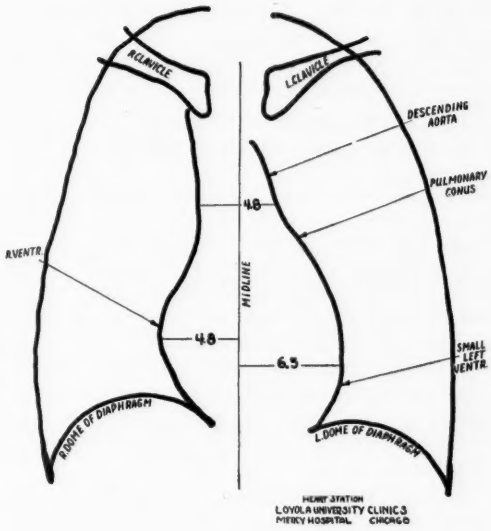
HYPERTENSIVE HEART DISEASE



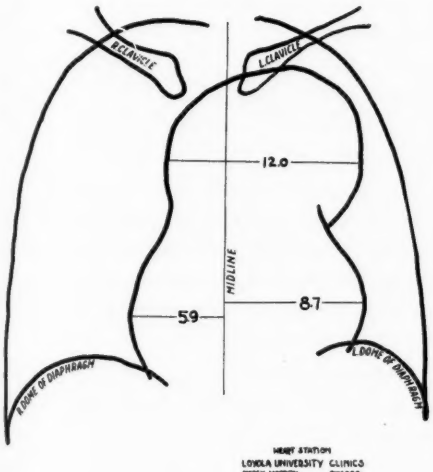
SYPHILITIC AORTITIS
(MESAORTITIS LUETICA)



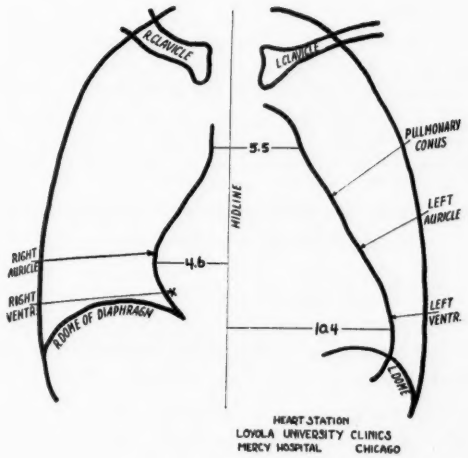
COMPENSATED MITRAL STENOSIS



AORTIC ARCH ANEURYSM
(SYPHILIS)



MITRAL CONFIGURATION



1. *Arteriosclerotic Heart Disease* — The alteration of configuration was moderate and consisted with some exceptions of a widening of the ascending portion and arch of the aorta, and a slight increase in the left ventricular spread.

2. *Hypertensive Heart Disease* — The alteration is essentially one of left ventricular hypertrophy. Incidentally, we were impressed with the prognostic significance of this enlargement. With only a few exceptions, the greater the hypertrophy the more advanced the disease and the poorer the outlook.

3. *Syphilitic Heart Disease* — Here the information gathered by percussion and telefluoroscopy was important and helpful. In the presence of only a positive history of Syphilis, a few subjective symptoms of cardiac invasion, such as aortic pain and dyspnea on effort, we encountered in 94 per cent of syphilitic hearts a definitely widened aorta. It was furthermore interesting to note that, so long as there was no demonstrable insufficiency of the aortic valve, a left ventricle of normal configuration was consistently discovered in a syphilitic heart with a very materially widened aorta. We encountered several large syphilitic aneurysms of the aorta, without signs of aortic insufficiency, and with normal left ventricular dimensions.

4. *Rheumatic Heart Disease* — It was in this type of heart disease that we received most diagnostic and differential diagnostic help, from percussion and telefluoroscopy. It is sometimes difficult to "time" a mitral murmur and thereby differentiate a mitral insufficiency from a true stenosis. The altered configuration as brought out by percussion and telefluoroscopy, renders the diagnosis relatively simple. Whereas the former is associated with an increased transverse diameter, the latter (mitral stenosis) shows the normal left auriculo-ventricular groove changed from a concavity to a convexity, and the right ventricle preponderantly convex.

5. *Thyroid Heart Disease* — This type of heart disease, with its subjective symptoms of heart consciousness, its tachycardia, auricular fibrillation and often a relatively mitral murmur, can be very confusing clinically, but as a rule differentiated from Rheumatic Mitral Disease by its unaltered contours.

DIAGNOSTIC IMPORTANCE OF ELECTROCARDIOGRAMS IN HEART DISEASE PAST FIFTY

Electrocardiography supplies more diagnostic information in these types of heart disease than in any other age group. Our charts reveal the following data:

1. *Arteriosclerotic Heart Disease:* In this type of heart disease, with symptoms and signs of heart muscle impairment in the foreground, and coronary symptoms negligible, the electrocardiographic changes are essentially those of heart muscle slurring. The degree or extent of slurring, however, is an important and diagnostic criterion. Alterations in rate, we found, are an interesting study in these senile hearts; to wit: 25 per cent showed a definite alteration of rate from an accepted norm, with bradycardias exceeding tachycardias by 10 per cent. Alterations in rhythm as certified by the electrocardiogram occurred in 20 per cent of all senile hearts and were divided as follows:

a. Ventricular extrasystoles ...10 per cent

b. Auricular fibrillation ..... 6 per cent

c. Auricular extrasystoles ..... 0.5 per cent

d. Heart block (all degrees) ... 1.5 per cent

The remainder were a non-organic sinus arrhythmia. In senile hearts with coronary symptoms prominent, the electrocardiogram revealed the following:

1. In so-called "Angina of Effort" (a brief episode with no subsequent symptoms) T wave changes in 3 per cent.

2. In the intermediary type of Coronary Disease (with an episode of long duration but no evidence of infarction) T wave changes in 25 per cent.

3. In instances with frank occlusion and infarction (associated with shock) T wave changes in 90 per cent of cases.

2. *Hypertensive Heart Disease:* Left axis deviation is the rule and is encountered in 82 per cent of all graphs. In addition, T_1 and T_2 inversion and an upright T_3 are commonly encountered. The RST segments in leads 1 and 2 are depressed, and elevated in lead 3.

3. *Syphilitic Heart Disease:* Here the electrocardiographic changes consisted essentially of a left axis deviation and heart muscle slurring. Even in the presence of coronary symptoms due to narrowing of the coronary ostia T wave changes were unreliable.

4. *Thyroid Heart Disease:* This condition shows the following electrocardiographic changes:

a. Increased rate almost always, from a mild to severe degree.

b. Ventricular extrasystoles in 16 per cent of cases.

c. Auricular fibrillation so commonly that we are inclined to believe this type of irregularity occurs more frequently in thyroid hearts than in any other, not excepting the arteriosclerotic type.

5. *Rheumatic Heart Disease:* The electrocardiographic changes were chiefly as follows: right axis deviation occasionally in pure mitral stenosis, left axis deviation in aortic insufficiency; with heart muscle slurring in both types. The most common and consistent electrocardiographic change encountered in all types of Rheumatic Heart Disease was a conduction disturbance in the form of heart block. However, we encountered heart block in only 4 per cent of well compensated Rheumatic Heart Disease in this age group since practically all were in the quiescent stage.

Question No. IV. Do cardiac symptoms antedate signs or vice versa?

This admits of no concise answer. Possibly our charts would have supplied a more satisfactory answer to the question "Do symptoms or signs *predominate* in the senile types of heart disease?" Applying *that* question to our sundry types of heart disease we find:

1. *Arteriosclerotic Heart Disease:* As a rule, we encounter subjective symptoms of both heart muscle deterioration and coronary distress, with no appreciable demonstrable alteration of the heart's contours and frequently no physical signs.

2. *Hypertensive Heart Disease:* Physical signs, particularly an altered configuration, are demonstrable very early in the course of the disease, frequently in the *entire abscence* of subjective cardiac symptoms.

3. *Rheumatic Heart Disease:* In its quiescent stage, years after the invasion, this may be entirely symptom free and yet show definite contour alterations.

4. *Syphilitic Heart Disease:* The heart shows minor yet definite alterations in contour early in its invasion, while subjective symptoms are negligible.

5. *Thyroid Heart Disease:* Assuming the heart was anatomically and organically normal prior to the influence of thyroid hyperactivity, the symptoms are distinctly in the foreground.

Question No. VII. What is the Immediate Prognosis? Potential efficiency?

This is so great a variable in heart disease in this age group that it is possibly foolhardy even to theorize upon it. However, referring again to our charts, we are left with the following impressions:

1. *Arteriosclerotic Heart Disease:* When dealing primarily with a heart muscle deterioration, with coronary symptoms absent, we frequently encounter a fairly high mental capacity without untoward effects. Physical effort, on the other hand, leads to incapacitation. In the presence of coronary symptoms and signs, both physical and mental activities are sharply curtailed.

2. *Hypertensive Heart Disease:* Even with considerable symptoms and signs, it is compatible with not only years of life, but what is more important, livelihood. It is interesting to note what physical and mental strains a hypertensive heart can meet and effectively cope with. The degree of left ventricular hypertrophy is a rough index of potential vital capacity.

3. *Syphilitic Heart Disease:* This condition presents an unfavorable outlook, not only as regards duration of life, but the physical potential as well. The appearance of symptoms and signs of syphilitic aortitis is usually associated with a diminution of physical endurance. Very considerable mental activity and sustained mental strain are, however, compatible with life and well-being.

4. *Thyroid Heart Disease:* This condition is compatible not only with years of life but also with a high potential efficiency.

5. *Rheumatic Heart Disease:* The "Spill-Over" from earlier decades predicates an unfavorable prognosis. Except in well compensated and uncomplicated mitral lesions, vital capacity is markedly diminished and physical overstrain leads to recurrent decompensations.

SUMMARY

This is a preliminary report of an investigation of four hundred of a total of one thousand cardiacs in the age group of fifty to eighty years. The material gathered consumed five and one-half years and embodies case histories, physical examinations, percussion measurements checked by telefluoroscopies and electrocardiograms. This

incomplete study led to the following conclusions:

1. The most common forms of heart disease encountered in senescence are:
   a. Arteriosclerotic
   b. Hypertensive
   c. Syphilitic
   d. Rheumatic
   e. Thyroid
2. The earliest subjective symptoms are:
   a. Dyspnea
   b. Heart consciousness
   c. Pain
3. The outstanding and most important diagnostic physical sign is altered configuration of the heart.
4. Percussion carefully carried out is reliable and has greater diagnostic value than auscultation.
5. Telefluoroscopy is a simple, economical and practical diagnostic adjunct to percussion.
6. The electrocardiograph furnishes more help in this age group than in any other types or heart disease.
7. It is possible and practical to differentiate clinically three different stages of Coronary Disease.
8. A fair working knowledge concerning the immediate prognosis of the various individual types of heart disease encountered in senile individuals has been presented herewith.

In the preparation of this study of Senile Ecstasy, we hereby acknowledge our indebtedness to the following and express our sincere appreciation for their kind cooperation:

1. The Superintendent of Mercy Hospital of Chicago, Sister Mary Ludwina.
2. Sister Mary Flora, Director of the Physio-Therapy Department of Mercy Hospital.
3. Miss Elizabeth Sheridan, R.N., Director of the Dispensary of Mercy Hospital.
4. The personnel of the X-ray Department of Mercy Hospital.
5. The Grey Ladies Cardiac Unit of Mercy Hospital.
6. Sister Mary Ethelreda.
7. Dr. George Hellmuth.

THE SURGICAL TREATMENT OF DEAFNESS

GEORGE E. SHAMBAUGH, JR., M. D.
CHICAGO

Otosclerosis is the most important cause for progressive conduction deafness in adult life. A study of the causes of deafness among the members of the Washington, D. C. League of the Hard of Hearing made by me in 1933 showed that 70% were deafened from otosclerosis. A similar study carried out in Chicago gave similar results. The histologic study of temporal bones confirms the great frequency of otosclerosis.

The cause of otosclerosis is not known. The pathologic lesion consists of a focus of spongy new-formed bone in the ivory-like bony capsule surrounding the labyrinth of the inner ear. This focus of spongy bone occurs most often just in front of the oval window, and as it slowly enlarges it finally grows across the oval window onto the foot-plate of the stapes resulting in a firm bony ankylosis of the stapes to the margins of the oval window.

The loss of hearing in otosclerosis is due to the stapes ankylosis which prevents air-borne sounds from reaching the inner ear from the drum membrane and ossicular chain. Only sounds loud enough to cause the skull to vibrate can be carried directly through the bone to the inner ear.

There is no medical treatment for otosclerosis, which can either improve the hearing or arrest the slowly progressing loss of the ability to hear air-conducted sounds. Finally an electrical hearing aid becomes necessary to amplify and carry these sounds to the bones of the skull so that they may reach the inner ear and the still active nerve of hearing.

Soon after otosclerosis was first described in 1857 by Toynbee otologists began to search for some method of removing the obstruction to sound conduction. The surgical treatment of otosclerosis has been a long, slow development beginning with Kessel who in 1876 attempted unsuccessfully to remove the ankylosed stapes. In 1897 Passow made a small trephine opening in the promontory to take the place of the occluded oval window, and obtained a definite, but

From the Wesley Memorial Hospital and Northwestern University Medical School.

Read before the Illinois State Medical Society Meeting, Peoria, May 1940. Revised Dec. 1941.

only temporary improvement in hearing. Barany in 1910, Jenkins in 1913 and Holmgren from 1917 to the present day, as well as several others, attempted to improve the hearing in otosclerosis by making a new window into the labyrinth but altho there was nearly always an immediate improvement in hearing it was soon lost by bony closure of the new window.

In 1924 Sourdille devised a complicated and ingenious three or four stage operation which for the first time began to give a few permanent improvements in hearing. However, because the series of operations required a year or longer to complete and because bony closure of the new window still occurred in many cases, the Sourdille operation was not very practical.

In 1938 Lempert published his first results with a new one-stage operation for otosclerosis. In his latest report in 1940 Lempert had operated 120 patients with a lasting hearing improvement in 69 or 58%. Lempert has called his operation the "fenestration operation."

Lempert described his original technic in detail in his first publication in July 1938. Since then a few modifications have been made by him, the most important being the removal of the incus and the making of the new window or fenestrata into the ampullated end of the horizontal semicircular canal where it opens into the dome of the vestibule. Early in 1940 I introduced the use of constant irrigation while making the fenestra, in order to wash away every particle of bone dust, and late in 1940 I introduced the use of a binocular dissecting microscope giving a magnification of 7 X, while making the fenestrax in order to improve the visualization of the very tiny and delicate structures. Otherwise I have followed Lempert's technic in all respects.

The fenestration operation as I now do it is performed under avertin anesthesia. The endaural approach is used. The mastoid cells are partially removed to expose the incus and head of the malleus. The incudomalleolar joint is separated and the head of the malleus is amputated. The incus is left in place to prevent bone chips from falling into the middle ear cavity. The bony superior and posterior external auditory meatus wall is then removed leaving the epidermal lining intact with Shrapnell's membrane and the pars tensa of the drum membrane. Since the skin of the meatus is extremely thin and delicate where it joins Shrapnell's membrane, this part of the procedure requires the utmost patience and care.

The bony horizontal semicircular canal is now clearly exposed by removal of the cellular bone from around it. The skin of the superior and posterior meatal wall is freed by appropriate incisions so that it may be turned up and back as a flap continuous with the drum membrane, to cover the horizontal semicircular canal. This completed flap must be intact without tears or perforations so that the fenestra which is about to be made may be covered with a viable membrane with an intact blood supply, continuous with the drum membrane. If the flap is torn or perforated the operation must be discontinued.

The final step in the operation is the most difficult, the most important and the most delicate and is performed in a perfectly bloodless field under the binocular dissecting microscope. A flowing film of warmed sterile normal saline enters the operative cavity thru a small flexible silver tube, and is removed thru a second tiny suction tube so that the surface of the bony horizontal canal is kept immaculately clean and free from bone dust. The incus is now removed and discarded. With a dental finishing burr the bony covering of the ampulla of the horizontal semicircular canal is slowly removed until only a very thin transparent layer of the endosteal bone remains. A few more gentle strokes with the burr pulverizes this thin layer of bone. Tiny curved dental searchers are used to remove the pulverized bone adherent to the underlying endosteum, until the perilymph space lies widely exposed, with the delicate transparent tube of the membranous labyrinth floating in it. Rupture of the extremely fragile membraneous labyrinth would ruin the result and must be avoided. The completed fenestrum lies immediately above the oval window, separated from it only by the facial nerve in its bony canal. The new window measures 2 x 4 mm. and is slightly larger than the oval window.

The previously prepared skin flap is now turned back and up to cover the new fenestra, it is held firmly in place with paraffin mesh gauze packs and the operation is completed.

The packs are removed on the fifth post-operative day, the patient returns home on the 7th or 9th post-operative day and returns for sterile dressings until the operative cavity is completely

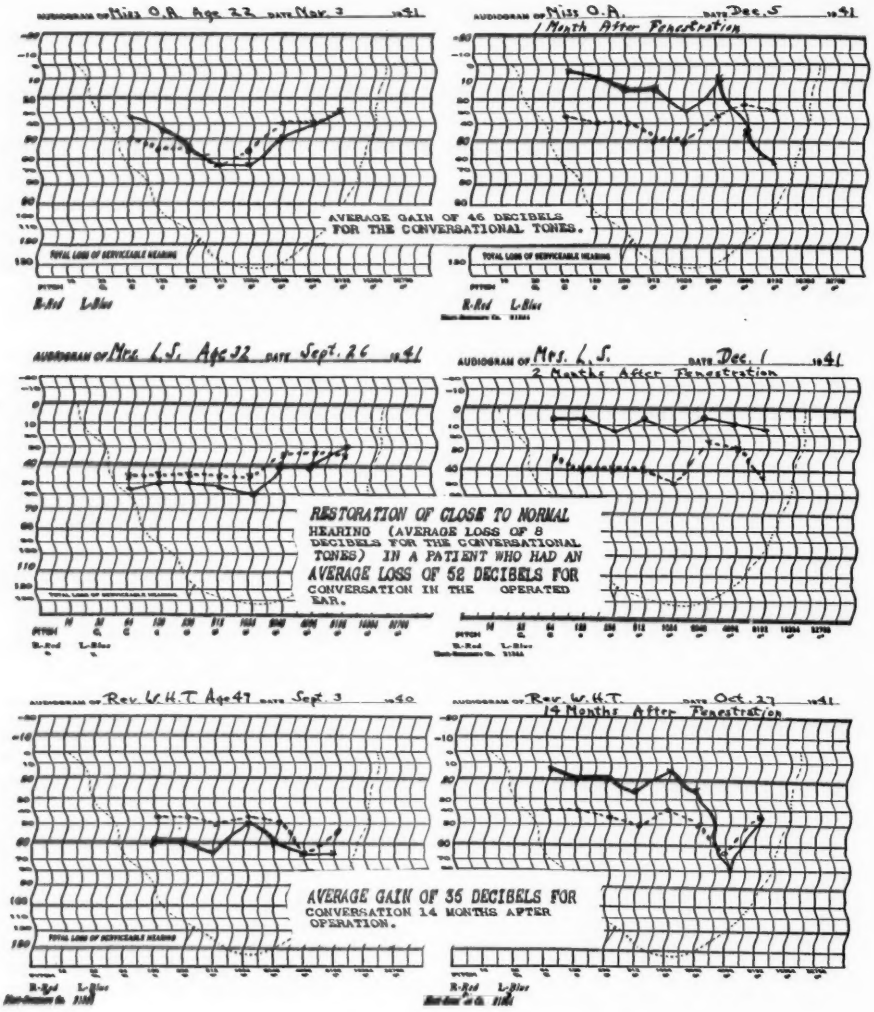

AVERAGE GAIN OF 46 DECIBELS FOR THE CONVERSATIONAL TONES.
1 Month After Fenestration
RESTORATION OF CLOSE TO NORMAL HEARING (AVERAGE LOSS OF 8 DECIBELS FOR THE CONVERSATIONAL TONES) IN A PATIENT WHO HAD AN AVERAGE LOSS OF 52 DECIBELS FOR CONVERSATION IN THE OPERATED EAR.
2 Months After Fenestration
AVERAGE GAIN OF 35 DECIBELS FOR CONVERSATION 14 MONTHS AFTER OPERATION.
14 Months After Fenestration

Figure 1. Audiograms before and after fenestration.

epidermized and dry, occurring on the average 8 to 10 weeks after the operation.

The hearing which is usually noticeably better immediately after the operation, declines during *the first week, and climbs again after the packing* is removed, reaching its greatest improvement *two to six months after the operation.*

The degree of hearing improvement varies *from a restoration of close to normal hearing in* some persons who had lost 50% of their serviceable hearing (Fig. 1.) to all grades of lesser degrees of improvement depending *partly upon the* pre-operative loss and the condition of the nerve of hearing and partly upon the amount of post-operative sterile labyrinthitis that occurs to a *greater or lesser degree in every case. In the* great majority of cases the hearing resulting *from the operation surpasses that secured from a* hearing aid, in addition to being free from the *distortion and static of the hearing aid; it is* "natural" hearing.

The operation is not successful in every case. Out of 146 operations which I have done in the past 3½ years, the post-operative labyrinthitis *was sufficiently intense to result in a permanent* depression of hearing in the operated ear in two

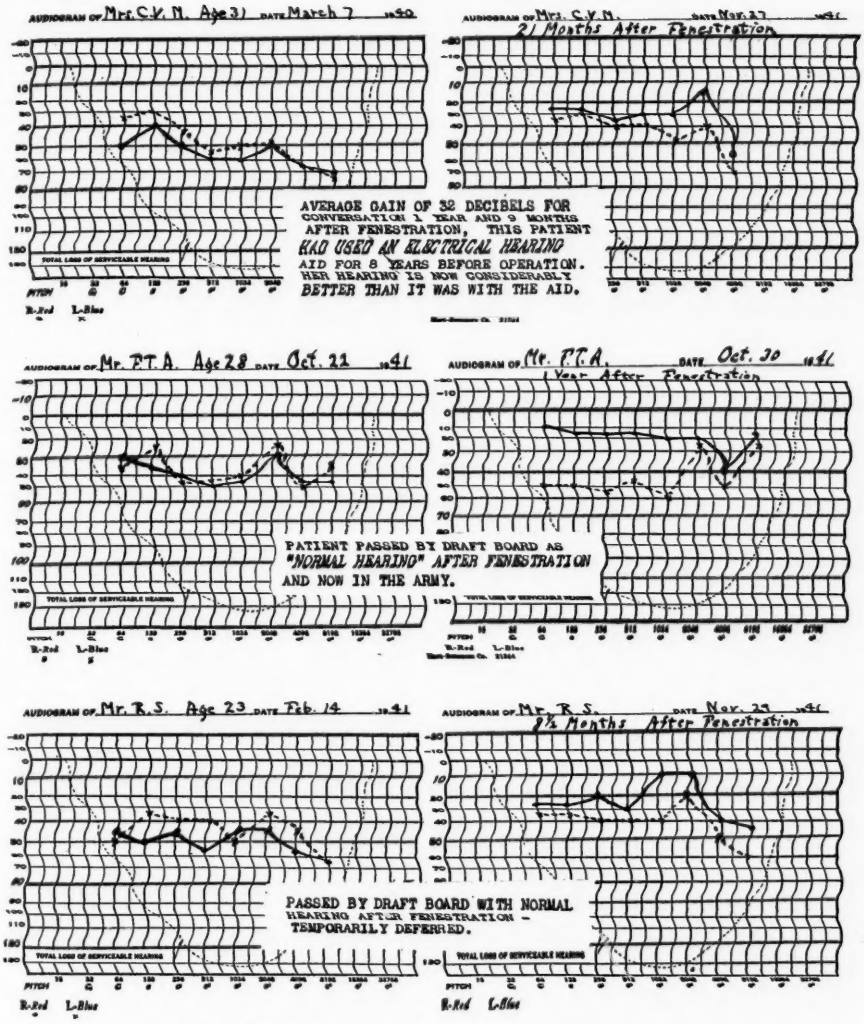

AUDIOGRAM OF Mrs. C.V.N. Age 31 DATE March 7 1940
AUDIOGRAM OF Mrs. C.V.N. DATE Nov. 27 1941
21 Months After Fenestration
AVERAGE GAIN OF 32 DECIBELS FOR CONVERSATION 1 YEAR AND 9 MONTHS AFTER FENESTRATION, THIS PATIENT HAD USED AN ELECTRICAL HEARING AID FOR 8 YEARS BEFORE OPERATION. HER HEARING IS NOW CONSIDERABLY BETTER THAN IT WAS WITH THE AID.
AUDIOGRAM OF Mr. P.T.A. Age 28 DATE Oct. 22 1941
AUDIOGRAM OF Mr. P.T.A. DATE Oct. 30 1941
1 Year After Fenestration
PATIENT PASSED BY DRAFT BOARD AS "NORMAL HEARING" AFTER FENESTRATION AND NOW IN THE ARMY.
AUDIOGRAM OF Mr. R.S. Age 23 DATE Feb. 14 1941
AUDIOGRAM OF Mr. R.S. DATE Nov. 29 1941
9½ Months After Fenestration
PASSED BY DRAFT BOARD WITH NORMAL HEARING AFTER FENESTRATION — TEMPORARILY DEFERRED.
TOTAL LOSS OF SERVICEABLE HEARING
PITCH
R-Red L-Blue

Figure 2. Audiograms before and after fenestration.

cases. Fortunately the worst hearing ear had been operated in both instances so that the loss was not of serious consequence to the patient. *Because of this unavoidable, tho slight, possibility,* the poorer hearing ear should always be *preferred for operation.*

In a small proportion of cases the newly created fenestra closes and the hearing improvement *declines to the pre-operative level. In my experience* in 116 consecutive original operations *bony closure, when it occurred, always began* within the first 6 or 7 months after operation, and generally within the first 4 months. *There-*after a fenestra that is open with a maintained hearing improvement will apparently remain open permanently. Should the fenestra close within the first 6 months it may be reopened in *a second operation.* This was done in 18 cases, 15 of which now have a hearing improvement *that appears to be permanent.*

The fenestration operation is indicated in patients with bilateral conduction deafness due to *stapes fixation sufficient to constitute a handicap.* The nerve of hearing must be intact for

the portion of the tone range used in hearing conversation, and this is determined by the bone conduction audiogram. The ear must be free from suppuration, the drum membrane must be intact. The patient should be in good health with a negative Wasserman and he must plan to remain under observation for two months after the operation since the after-care is of vital importance to a good result and cannot be delegated to some one else. The surgeon must first master the intricate and delicate technic of the operation on the cadaver before he can expect to secure satisfactory results on the patient.

The results of the fenestration operation in my 3½ years experience have been as follows:

A total of 146 operations on 116 patients were performed, with no fatalities and no serious complications. In 19 cases the original operation was revised because of closure of a fenestra, while 11 patients had both ears operated.

The chief annoyance after operation was dizziness, present immediately after operation in nearly every case, usually disappearing within a few weeks, but occasionally noticeable as long as a year after operation. This dizziness is due to irritation of the vestibular nerve ending in the horizontal semicircular canal and is noticeable chiefly on quick movements. There were 4 cases of transient facial paresis beginning one to two weeks after operation and clearing up completely in another one to two weeks. In 2 cases a post-operative sterile labyrinthitis resulted in a permanent further loss of hearing amounting to 18 decibels in one, 13 decibels in the other, for the conversational frequencies.

Of the 116 patients operated, 103 or 89% now have a hearing improvement greater than 10 decibels above the pre-operative level for the conversational tones. The average gain was 26.5 decibels, and the greatest gain in any case was 46 decibels for the conversational frequencies. (Fig. 1.) In 9 patients the hearing is within 10 decibels of the pre-operative level and is therefore essentially unchanged.

The table compares the results obtained with the original Lempert technic, with the results when constant irrigation alone, and when irrigation and the microscope were added to the technic. These results do not include the revisions, which bring the good results for the entire group to slightly better than 90%.

CONCLUSIONS

1. The fenestration operation offers a means of restoring a major part of the hearing loss in deafness due to stapes fixation.
2. The problem of bony closure of the new window has been largely solved by the technic described by Lempert and modified by the addition of irrigation and the microscope while making the fenestra.
3. The degree of hearing improvement after the fenestration operation generally surpasses that secured from a hearing aid.
4. With the recent improvements in technic good results have been obtained in 89% of properly selected cases.
5. A hearing improvement maintained for more than six months after the fenestration operation may be regarded as probably permanent.

In 88% of patients operated more than six months there is a good hearing result.

6. The fenestration operation properly done carries little risk to life and health and no risk to hearing if the poorer hearing ear is selected for operation.

122 South Michigan Ave.

Tuberculosis does not recognize appeasement. Only through the cooperation and alertness of all can we stop this needless sacrifice of life. Each case of tuberculosis is a result of the carelessness of another case. We have no known specific that can be used to break this vicious cycle rapidly, but our known available means, if properly used, will slowly eradicate this disease. Alfred M. Dietrich, M.D., Delaware State Med. Jour., Aug., 1941.

The path to the sanatorium must be made easy for the patient and his family. The social investigation should make this its primary function. It should not be a search for resources to be exhausted before the community assumes the cost. The great majority of cases come from families in the low income groups with little if any savings. Treatment is expensive. Insistence upon the use of all the family resources means impoverishment and they may become community charges for rent, food, and clothing. A family is wrecked. The prospect of this is one of the chief deterrents to early hospitalization and to continued stay until the disease is arrested. Edward S. Godfrey, M.D, New York State Commissioner of Health.

THE MEDICAL CARE OF PUBLIC ASSISTANCE RECIPIENTS

CHARLES H. PHIFER, M.D.
CHICAGO

This has become one of the leading major medical problems in the United States since the depression. It is nation wide in scope. It obviously is a larger problem in some states than in others. It is particularly so in the state of Illinois where this economic catastrophe played tremendous havoc. Its immediate effect was to cause about 1,300,000 people to be deprived of their livelihood and to be dependent on public assistance for the necessities of life. Careful constructive procedures and surveys of these people are made to determine their age, their health, their physical and mental handicaps, their race, their employment ability. Likewise extensive and constructive efforts at placement in employment for those capable of working leave us at the present time with about 800,000 people dependent on public assistance. Statistics indicate that there are about 25,000 of these residing in the second councilor district of the Illinois State Medical Society. It would thus seem only fair to assume that inasmuch as the number of cases remains this high after eleven years of continuous constructive efforts to reduce the number of dependents, it augurs well to remain a permanent affair, and with the trends that prevail today, the tendency of the case load will be to increase rather than to decrease.

Careful analytical studies have classified these people in this state into five different categories, viz, old age assistance, aid to dependent children, the blind pension, direct relief, and W.P.A.

While all of these people are dependent on public assistance, the administrative procedure covering the management of some of these categories varies in some detail.

The old age assistance, the aid to dependent children and the blind are included in the social security act and are financed by equally matched federal and state funds. In order for a state to participate in this federal program, it must pass an enabling act that conforms with that category of the social security act in which it wishes to participate.

The state of Illinois has passed such legislation covering the old age assistance and the aid to dependent children. We did not, however, pass an enabling act covering the blind.

The Advisory Committee of the Illinois State Medical Society has assisted the Department of Public Welfare of the State of Illinois in drafting a program for the medical care of the old age assistance recipients and the aid to dependent children program. Each county society has appointed a medical advisory committee to help administer this program locally. It is sincerely hoped that the members of these committees will devote the necessary time, interest and cooperation in this civic project, to insure good medical care for these people as well as reflect credit upon the Department of Public Welfare and the Illinois State Medical Society. The drafting of the social security act with its provisions represents the first recognition for necessity of permanent care for certain groups of people. There remains another large group of recipients classified as Relief, W.P.A. and the blind, for which there is no organized state program to provide medical care.

The only attempt at a program of this type was established in 1934 under the Illinois Emergency Relief Commission. It was discontinued for want of funds when federal money was withdrawn from the state in 1936. This program while possessing many merits lacked the most essential thing that these programs need to make them workable, viz., proper supervision and assistance by county medical advisory committees.

The picture in this state became confused and more complicated in July 1936 when the Illinois legislature voted to shift the responsibility for administration of relief from 102 county administrators to 1,455 local governmental units, viz., 1,437 townships, 17 county Boards of Commission and one municipality, Chicago. Each of these operates its own type of relief as well as medical care. Many of these permit of the free choice of physician by clients while others have contract physicians. Many have no provision for medical care.

The one municipality, Chicago, has one of the most efficient and renowned medical programs for relief clients in the United States. Its program is a modified form of the one that the Illinois Emergency Relief Commission drafted. It has operated continuously since

1934. It has been carefully supervised and directed by a medical advisory committee of the Chicago Medical Society and representatives of the Chicago Relief Administration. Twenty-six hundred physicians participate in it. Its constructive and harmonious work has attracted the attention of the Departments of Public Welfare and Relief Administration throughout these United States.

The W.P.A. group constitute a distinct entity among these recipients. Their income is so low that they are unable to pay for their own medical care. This means that the only resources for medical care that are available for them under the present status are the county physicians' service, or where voluntary services in the community are able to provide care for them without charge. It should be remembered that the present status of the administration of relief in Illinois, while it may not intend to do so, gives a distorted picture of our relief question. The effect of decentralization in this manner not only gives a false impression of the number of people on relief, but likewise of the necessity for a state wide program. It also greatly increases the cost of administration. There is no standard type of relief, nor standard of medical care. It is obviously harder to develop a good program for medical care under these conditions. This does not, however, minimize the necessity for nor reduce the responsibility for its needs. The number of people involved at present as well as the increasing demand for well organized permanent medical care for these recipients, make it a subject to be given very careful consideration by your State Medical Society.

It is stated that some few physicians fear this question because of its social aspects. It is my opinion that there is a vast difference between rendering medical care to state wards on a carefully regulated medical program drafted with thoughtful scrutiny by your medical societies and the assisting agencies and the passing of national and state legislation embracing compulsory medical care for all classes of people.

The present arrangement for medical care for relief and W.P.A. recipients in this state is not satisfactory to the majority of physicians. It is true that in a few communities the working agreement with the local administration may be agreeable. We should not forget that there are over 10,000 physicians in this state; we should think in terms of all the members of the medical profession, and not alone of those few communities where conditions are workable. The individual physician is powerless in affairs of this nature. The authority for these projects can best be arranged through your state medical society and the administering agency. They should be on a state wide basis.

Your State Medical Society Journal has for many years carried some very valuable contributions on medical economics. In the interim, however, we have overlooked a very practical problem for the members of our profession in not planning a good state wide program for medical service to these recipients. In Chicago this service on a more restricted basis has paid over $3,000,000 in seven years to the physicians who participated in the program of Illinois Emergency Relief Commission and Chicago Relief Administration.

It is true that the compensation for medical care in all programs for public assistance recipients is limited. It should be recalled that they are awarded only sufficient money to furnish the bare necessities of life, food, clothing, housing and medical care. It is also true that the load to compensate these governmental wards is frequently too great for any one agency to assume the responsibility. It is for that reason that federal, state and local funds are frequently necessary to finance these programs throughout the United States. The tendency is to place the responsibility for administration of these programs with the State Department of Public Welfare rather than with the local governmental units. Experience throughout the county shows that this procedure speaks for efficiency of administration, and conservation of funds, and prevents political interference. The administration is faced with the problem of providing adequate medical care within the limits of funds.

It is my opinion that there should be a program for medical care covering all of these people; that there should be free choice of physician, providing the physician so designated cares to participate; that there should be a uniform fee schedule covering all types of medical and surgical services to all types of recipients.

The medical profession has always provided high standards of medical care for all the people. In this group of recipients we must as-

sume the responsibility for helping draft these programs and maintaining a pleasant working relationship between the administrating agency and the medical profession.

The medical advisory committees, state and county, must devote adequate time, and careful constructive thinking to help guide and direct these programs if they are to prevail. We can in this manner provide good medical care for these recipients, and protect the public funds, as well as the interests of the members of the medical profession.

ANALYSIS OF PRESBYOPIA

RALPH H. WOODS, M.D.
LA SALLE

Modified Donders' Table

Age	20	25	30	35	40	45	50	55	60
P.p. (inches)	4	5	6	8	10	13	16	23	40
Amp. (Diop.)	10	8	7	5	4	3	2½	1¼	1

In 1866 The Anomalies of Refraction by Frans Cornelius Donders was translated into English and universally accepted and heralded as a great advance in Ophthalmology. This was just seventy-five years ago.

Unfortunately the physicians of that time and since that time have failed to grasp the practical application of Donders' teachings. As a matter of fact, books on the subject of refraction have given us but little working data, until "Cardinals of Refraction" was published in 1937.

About fifty years ago Alfred E. Prince of Springfield, Illinois an original investigator, saw that Donders' studies were extremely necessary in routine refractions. He laid out Donders' age, punctum proximum, and amplitude table on a stick carrying a slide target. Even with this simple easily manipulated device requiring no mental effort on the part of the examiner the measurement of the amplitude of accommodation has not been universally used. It is quite stimulating to know that prominent eastern physicians are now advocating this procedure routinely.

Presented before the Section on Eye, Ear, Nose and Throat, 101st Annual Meeting, Illinois State Medical Society, Chicago, May 21, 1941.

If each eye can be measured alone, why not the two eyes at once? The Ampliometer serves this purpose.

A forerunner of this device was introduced by an Optician shortly after Prince came out with his rule. Its objection was its arbitrary graduation, so about ten years ago a Model T Ford oil gauge was calibrated to closely agree with the Prince Rule to measure the two eyes at the same time. The Ampliometer is the result of this experiment. With this simple low priced device one determines any deficiency in the amplitude of accommodation and at the same stroke determines if the punctum proximum of convergence is at the same distance as the punctum proximum of accommodation by simply turning over the test card presenting to the eyes a vertical line of type. This vertical line of type should stay single at the punctum proximum of accommodation.

This vertical line of type has a black dot at its center. Holding a 6° prism base up or down over one eye will put two dots on the line. Should there be two lines there is a convergence deficiency. Should there remain one line and one dot one eye is repressing.

Ascertaining the amplitude of accommodation is as essential as determining the static refraction for the reason there is such a condition as presbyopia in children (probably a bilateral ciliary paralysis) and occasionally also early presbyopia in young adults.

This condition can only be determined by measurement of the power of accommodation, following a carefully done manifest refraction.

Every eye case entering a practitioners office is potentially one of pathology, possibly not ocular pathology but of some systemic disturbance manifesting itself first in a disturbance of vision. Newspaper advertising has made the public eye conscious so naturally a lay person with a visual disturbance thinks early of glasses as the remedy.

The Ophthalmologists first duty is diagnosis; his last thought, prescribing lenses.

Eliminating any ocular or contributing systemic pathology, then doing a precise manifest refraction, determining the abduction, adduction, hyper and hypo duction, one is ready to measure the amplitude of accommodation, amplitude of convergence, and reserve convergence.

Disregard any findings with the Maddox rod.

This space does not permit going into these muscle measurements or explaining why the Maddox rod is useless in determining muscle function in discomfort cases.

There are four factors outstandingly essential to secure comfort to all eye workers.

1. (a) Center all minus lenses *out* two or three millimeters.
   (b) Center all plus lenses *in* for the near working distance, or even more.
2. Add enough prism base in to secure synkinesis (determined by adduction, reserve convergence, and amplitude of convergence.
3. Increase plus correction to tolerance if there is an excessive adduction and reserve convergence to secure synkinesis.
4. Presbyopic scales should be centered *in* two millimeters more than the distance correction to secure a little prism base in.
5. Give just enough plus in the presbyopic correction to leave one diopter of reserve accommodation.

In this brief period we can only consider paragraph No. 5.

With the precise ametropic correction in the trial frame, pre cycloplegic preferred, the patient is asked to show the exact distance at which he wishes to work. It will be at or near 13 or 16 inches.

May we say he chooses thirteen inches. To maintain vision at that distance he must have at all times one diopter of his own accommodation in reserve.

To see at thirteen inches requires three diopters. To have one diopter in reserve calls for four diopters in all. The dioptric equivalent of four diopters is ten inches. Ten inches is then established as a punctum proximum for comfortable vision at 13 inches.

It is not at all necessary to ask the patient his age. If he reads 5 point type at 10 inches we know from Donders' table he is approximately 40 years of age or less.

Should he not read the 5 point type set at 10 inches, plus sphers are added to each eye simultaneously until the blur is just lifted. The target is then pushed back to 13 inches. The type then clears. He then should read the 100% line on the Lebensohn reading chart at 14 inches.

In the final check it may be necessary to alter the presbyopic addition by a quarter diopter with a plus or minus. By noting the strength of our "add" and referring to the Accommodation table we can tell the patient his approximate age.

The following table is self explanatory. It shows the age, the amplitude for that age and why a given power is added to maintain one diopter in reserve for 13 inches.

Age	p.p.	Amp.	New p.p.	Add.	Reserve
45	13 in.	3	10 in.	+1.00	1.00
50	16 in.	2½	10 in.	+1.50	1.00
55	23 in.	1¾	10 in.	+2.25	1.00
60	40 in.	1	10 in.	+3.00	1.00

(At age 60 to 65 a +3.00 add. will usually not be tolerated. +2.50 is to be preferred)

Should the patient indicate 16 inches as a desired working distance the reasoning is no different.

An emmetrope to read at 16 inches will use 2½ diopters. To do this with comfort he should have one diopter in reserve at all times. We therefore establish a new punctum proximum. 2½ D + 1.00D = 3½ D. 3½ diopters divided into 40 inches gives us 11.4 inches.

The tendency of all refractionists is to over correct the presbyope, therefore it is safer to arbitrarily choose 12 inches for the new punctum proximum and add just enough plus, but no more, on each eye to lift the blur at that distance. The 5 point type will then be clear at 16 inches, and the patient will read the line marked 20/25 on the Lebensohn chart.

Presbyopic chart for 16 inches showing Amplitude, "add" and reserve.

Age	p.p.	Amp.	New p.p.	Add.	Reserve
45	13	3	12 in.	+ .50	1.00
50	16	2½	12 in.	+1.00	1.00
55	23	1¾	12 in.	+1.75	1.00
60	40	1	12 in.	+2.50	1.00

(At age 60 an add. of +2.00 to +2.25 will usually be more acceptable than a +2.50 add.)

The musician past fifty does very well with a +.75 add in fit overs which gives him a punctum proximum at about 13 inches and a punctum remotum at 53 inches. A range between 12 inches and 53 inches or 41 inches and an amplitude of 2.50 diopters. The musician at 60 would have, with the +.75 add, a punctum

remotum at 53 inches, a punctum proximum at 23 inches, an amplitude of one diopter, and a range of 30 inches. It is noted there is a wide difference between range and amplitude.

About thirty-seven years ago the writer began experimenting with a Prince rule and similar appliances and in this time a number of persons, children, teen age, and young adults were found who were in a presbyopic state.

The last one I saw of any consequence was a ten year old boy in the fall of '39. His vision was 20/40 + in each eye. Complaint, school work difficult. Dynamic skiametry gave +2.50 for each eye. Subjective manifest +2.00 for each eye giving 20/20 for each eye. The classic atropine prescription was given and in three days he was refracted again. The finding was again +2.00 and vision 20/20 for each eye. Here the cycloplegic finding proved the correctness of the manifest. No deductions were indicated. Neither was a post cycloplegic indicated, however, one important measurement was overlooked.

In the fall of 1940 the father brought the boy back stating the print in school was much smaller and the boy was again having trouble.

The record showed that the most essential measurement in any refraction had not been made. The punctum proximum was not recorded. The child had a punctum proximum way back at 20 inches. He was handled like any presbyope. The Ampliometer slide set at 10 inches, the blur lifted with a +2.00 clearing the type at 13 inches and giving 20/20 (Lebensohn chart) at that distance.

Bifocals were prescribed. A subsequent recheck proved their efficiency.

Owning a tape measure and knowing Donders' table will explain many obscure cases with children and young adults. Much easier, however, is the use of Prince rule or the Ampliometer.

DISCUSSION

Dr. A. H. Pember, Janesville, Wisconsin: It is indeed an honor to appear before the Section of Ophthalmology of the Illinois State Medical Society, and the same section of the Wisconsin Medical Society sends greetings.

Dr. Woods has worked out something of great value, as those of the profession who have used his technic will testify. Where his technic has been followed, especially in discomfort and presbyopic cases, the end results have been most gratifying.

The subject of the paper behooves the first discussant to confine what is to be said to presbyopia. However, I shall digress at times. Those of you who are not presbyopes will soon experience the difficulties of an added power for near to your distance correction. Presbyopia may be divided into two large general classes. The first includes those patients under the age of 45 who, when their refraction is completed, do not have their punctum proximum situated by actual measurement where it should be. The second group is made up of those individuals of the recognized presbyopic age whose punctum proximum has receded physiologically. The cases falling in Class 1 do so for one of two reasons; either we have not put enough plus in their finding or the case is one of early presbyopia. The clinical findings are the same in either classification 1 or 2, as is the treatment.

Not only the ametropic youngster, strabismic or not, but also the middle-aged adult in ordinary ophthalmic practice, should be the recipient of a refraction which has the accommodation suspended; in presbyopia by lenses and in younger individuals by drops or by lenses alone after a certain age. Why not, then, offer the individual who has reached the presbyopic age the same relative refraction?

By this is meant a dynamic skiapsy followed by a manifest refraction. In any concept of refraction this latter procedure is comparable to a post-cycloplegic refraction of a non-presbyope.

There are a few points not stressed by Dr. Woods. As an interne, with chiefs such as Suker, Lane, Darling and Gradle, the surgical rather than the refractive division of ophthalmology was stressed. As a result, all concerned were too preoccupied and paid too little attention to optics and physiologic optics with resultant comfort of cases presenting themselves for refraction alone. A good static or dynamic retinoscopy was done even in those days and the patient's eyes were treated more or less as a fixed optical instrument and the presbyopic correction added. The patient alone had to compensate for any optical discomfort. The job was done so far as the refractionist was concerned and it was up to the patient to wear the glasses ordered. May it be suggested again that an accurate manifest refraction be done after a meticulous dynamic skiametry in all presbyopes. From the findings and deductions of dynamic skiametry — and there are deductions of the above double maneuver, we arrive at the comfortable distance correction because the manifest will correspond with our findings as it does in a post-cycloplegic of a non-presbyope.

Most of us were taught that a specific addition should be added after the proper distance correction is ascertained: a +1.00 age 45; a +2.00 at 50; and even a +3.00 at 60 years of age. But why at the age of 45 do we add the +1.00? Simply because if our distance correction is correct, and the patient states 13 inches as his working distance, we know this

individual to read at 13 inches must use 3 diopters of accommodation; at 16 inches, 2.50 diopters of accommodation; at 23 inches, 1.75 diopters of accommodation, etc. At age 45 he has 3 diopters in reserve but cannot continue to exert this much muscle pull for any great length of time without tiring. If we create a new punctum proximum at 10 inches by adding a +1.00 sphere, then the patient can see comfortably for a short period of time, and when print is pushed back to 13 inches steady near work is made more comfortable. He uses the one diopter we have supplied, plus one of his own, and still has one in reserve. Very seldom is it necessary, as stated by Dr. Woods, to add a +3.00 if the distance correction is correct. The exception is a monocular aphakic eye.

The distance correction may introduce undesirable lens factors causing discomfort at near in any bifocal correction and Dr. Woods was correct in stating that the patient's distance lenses should be centered for the pupillary distance taken at 13 inches, and the bifocal segment moved in 2 mm in each eye. By so doing the effect of prism base in is secured to neutralize prism base out introduced by the distance prescription. The resultant amount of prism base in required varies with the strength of the patient's reserve convergence.

Dr. Woods mentioned the importance of taking proper interpupillary measurements. The usual manner in which the pupillary distance has been taken in the past has been from the inner limbus of one eye to the outer limbus of the other eye. Most clinicians have taken the pupillary distance at either 20 feet or a given near point. Dr. Woods suggests 13 inches for all near workers and presbyopes.

Another accurate method for this measurement, known as the corneal reflex pupillary distance, physiologic or visual axis pupillary distance, has been mentioned in years past by some authors, but for some reason has not been accepted as a general practice. It is the method suggested by Dr. George Guibor and by Austin Belgard, and arrives eventually at the same result as the pupillary distance taken by Dr. Woods. It has been found in many thousands of cases that the corneal reflex finding is usually 1 to 1.5 mm nasal in each eye to the geometric center of the cornea. This method, for the near pupillary distance, eliminates the prism effect base out produced by plus lenses when seeing at near through the distance glasses. Likewise, using the corneal reflex pupillary distance at near in a pair or reading glasses, the prism base out is eliminated. So this should become the method of choice in all prescriptions containing plus lenses. When the adduction power is weak in the near worker or presbyope the near pupillary distance should be used for the distance pupillary distance in order to secure prism base in to support convergence. This prism base in at distance leaves little or no base out at near as the patient looks through the optical center of his lens, except in those cases where a cylinder of sufficient strength at a given axis creates base out. Then the lens should have a still narrower pupillary distance than the near pupillary distance, so as to offset the prism created by the odd axis cylinder.

In minus lenses the same procedure is followed except that the lenses are decentered out. Using the corneal reflex for distance, prism base in is created when the patient converges for near. If a slight amount of prism is desired for distance then the anatomic pupillary distance may be used. If a greater amount of prism is desired then the lens must naturally be decentered out.

As we know, every stimulus to accommodate is also one to converge, and it is necessary to not only measure the accommodation for a given age but also the convergence and reserve convergence. It follows that the punctum proximum of convergence and accommodation should be equal. To measure the punctum proximum of convergence the patient should maintain a single vertical line and dot at the artificial punctum proximum distance which he should have for his age, and if the vertical line and dot double the amount of prism base in needed to maintain a dot and single line is the amount needed for synkineses. In this maneuver reserve convergence is called into play. This is measured by a vertical line and dot set at 13 inches (distance correction and presbyopic correction on) and a 6 degree prism base up or down before each eye. The patient should be able to overcome 15 degrees base out with means of a prism bar or rotary prism. Ordinarily, if he can accomplish this, he will have no discomfort as there will be no convergence difficulty. He will wear his bifocals comfortably.

I think it was Dr. Fisher many years ago who said: "Do accurate manifest; use the drops and prescribe the manifest." The equivalent applies in presbyopia; do an accurate dynamic skiopsy and then a manifest, leaving vision *just as good* with the strongest plus or the weakest minus lens as the case may be. Also, in presbyopia, the add must not only be figured in centimeters or inches according to the patient's desired reading distance, but also so as to leave one diopter of reserve accommodation. The old dictum, the younger the ophthalmologist, the stronger the add prescribed, no doubt still holds true.

TEN HEALTH RULES

Eat less, chew more.
Ride less, walk more.
Clothe less, bathe more.
Worry less, work more.
Idle less, play more.
Talk less, think more.
Go less, sleep more.
Waste less, give more.
Scold less, laugh more.
Preach less, practice more.

—*Anon*

DIABETIC COMA WITH ANURIA RELIEVED BY LARGE AMOUNTS OF INSULIN AND FLUID

HARRY W. SHUMAN, M.D., F.A.C.P.
ROCK ISLAND

Diabetic coma continues to be a major medical emergency; when complicated by anuria it presents a serious problem. The case reported below was in profound coma, passed into anuria and uremia, and required unusually large amounts of insulin and fluid to bring about recovery.

The unusual characteristics in the case to be described warrant publication of an individual report. Joslin[1] has stated, "The efficiency of the kidneys of patients with diabetes has always been striking, and the onset of renal disease in cases of diabetes of long duration has been far less frequent than one would anticipate . . . . on the other hand, in beginning coma, renal involvement has always seemed marked." Davidson and his coworkers[2] have commented that recovery from diabetic coma is rare when anuria supervenes.

REPORT OF A CASE

A young woman, aged 22 years, entered St. Anthony's Hospital October 27th, 1940, in deep coma. For three years she had been aware that she had diabetes and was well controlled with one daily dose of 20 units of protamine zinc insulin. Four days preceding her admittance to the hospital she had an impacted molar tooth removed under procaine anesthesia. She could not eat and omitted her insulin the following three days. Two days previous to her admission, she became nauseated and vomited occasionally and the day preceding admission she vomited continuously. On visiting the patient in her home, I found she did not respond to questions and upon her arrival at the hospital was in deep coma. On admission at 12:15 P.M. she had typical Kussmaul respirations and an acetone odor to the breath. She was restless, at times maniacal, and could not be aroused. The eye balls were soft; mouth, tongue and mucus membranes were parched. The skin was dry and showed evidence of lowered body temperature. Catheterization produced a total of 560 cubic centimeters of urine containing 5 per cent sugar, 2 plus albumen, 2 plus acetone, 2 plus diacetic acid, and with a specific gravity of 1.012. Microscopic examination revealed 4 plus hyaline casts and occasional leucocytes. The blood sugar was 544 mg. per hundred cubic centimeters. Due to inadequate apparatus, unfortunately, a carbon dioxide-combining power of the blood plasma could not be carried out. The blood pressure on admission was 105 systolic and 60 diastolic. The patient was immediately given 40 units of unmodified or crystalline insulin, warm blankets and heat were applied externally and preparations for gastric lavage were carried out. On lavage of the stomach from 1000-1500 cubic centimeters of black, tarry fluid returned, and 200 cubic centimeters of 5 per cent saline solution was allowed to remain after the washings were clear. A cleansing soap suds enema was given.

Insulin in doses of 30 units was given every fifteen minutes for the first four hours. The next blood sugar was taken six hours after the first estimation and was 428 mg. per hundred cubic centimeters. At 3:45 P.M., a quantitative urinary sugar was 4.5 per cent and the same reading was reported at 7:00 P.M.; additional readings at 10:00 P.M. and 1:00 A.M. were both 6.5 per cent. This was taken to indicate failure of response and larger doses of insulin were employed; 150 units were given intravenously at this time. In spite of persistent efforts to increase the carbohydrate metabolism and the use of large amounts of fluid intravenously and subcutaneously, the urinary output steadily diminished. The next morning, October 28th, 25 cubic centimeters of urine were obtained by catheter; during the afternoon the patient was restless, generalized muscle twitching was prominent, the skin was cold and at one time the pulse was imperceptible for over ten minutes. The blood pressure reading had fallen from 105 systolic to 88. By 6:00 P.M. on the same day only 100 cubic centimeters of urine could be obtained by catheter. During the next fourteen hours the entire output was only 100 cubic centimeters. An additional six hours elapsed before the patient voided 50 cubic centimeters. Because of the presence of anuria, additional fluids were continued. This included 1400 cubic centimeters of 10 per cent dextrose solution in divided doses administered over the twenty-four hour period, 3000 cubic centimeters of physiologic normal saline intravenously and subcutaneously, 1000 cubic centimeters of 2½ per cent dextrose in saline subcutaneously, 1000 cubic centimeters sixth molar sodium lactate solution, and 200 cubic centimeters of 5 per cent saline introduced through stomach tube. A total of 6,600 cubic centimeters of fluid was thus given in the twenty-four hour period and while the patient was in coma. The total amount of insulin required for twenty-four hours, while the patient was in coma, was 1255 units. The patient showed swelling of the face on the third day and marked subcutaneous edema of the entire abdomen on the seventh day. The subcutaneous abdominal edema was considerable and obscured the depression at the umbilicus. At no time was there edema of the extremities.

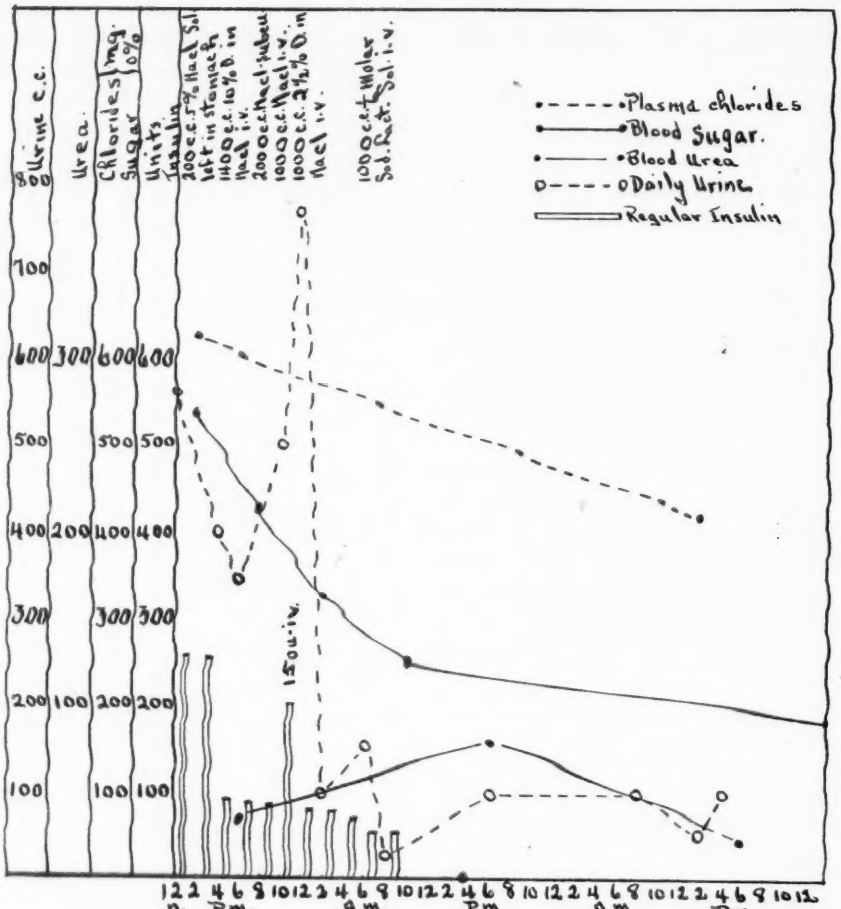

Urine c.c.
Urea
Chlorides mg. Sugar 10%
Units Insulin
800
700
600 300 600 600
500 500 500
400 200 400 400
300 300 300
200 100 200 200
100 100 100
200 c.c. 5% NaCl Sol left in stomach
1400 c.c. 10% D in NaCl i.v.
200 c.c. NaCl tube
1000 c.c. NaCl i.v.
1000 c.c. 2½% D in NaCl i.v.
1000 c.c. ½ Molar Sod. Lact. Sol. i.v.
150 c.c. i.v.
Plasma chlorides
Blood Sugar.
Blood Urea
Daily Urine
Regular Insulin
12 2 4 6 8 10 12 2 4 6 8 10 12 2 4 6 8 10 12 2 4 6 8 10 12 2 4 6 8 10 12
n. P.M. A.M. P.M. A.M. P.M.
Admission 10-27-40. 10-28-40 10-29-40.

Chart shows the level of blood sugar, plasma chlorides, blood urea, urinary output, amount of fluids, amount of Insulin while patient was in coma. (Slightly reconstructed after Fullerton, Lyall and Davidson.)

Plasma chloride determination on admission was 618 mg. per cent and fell to 415 mg. per cent on October 29th. Blood urea determination six hours after admission was 32 mg. per cent and rose to 78 mg. per cent on the second day and fell to 22 mg. on the third day. The blood sugar declined after the third day to 185 mg. per cent. The accompanying chart summarizes the plasma chloride, urea and blood sugar estimations; it also indicates the output of urine and total insulin and fluid in twenty-four hour period of coma.

The abdominal and facial edema disappeared on November 4th, eight days after admission, on changing to a salt free diet and substituting potassium chloride. The patient was dismissed from the hospital twelve days after her admission. Two weeks later her weight was 97 lbs. (44 Kg.) compared with her former weight of 106 lbs. (48 Kg.)

An x-ray of her chest at this time revealed no evidence of tuberculosis. The patient's father and mother both died of tuberculosis, aged 37 and 32, respectively.

COMMENT

The complication of anuria and anhydremia in diabetic coma has been stressed by many writers. Peters and his coworkers[3, 4, 5] have studied the serum proteins in diabetic acidosis, and as quoted by Ralli and Waterhouse[16] conclude that their initial high level is due to blood concentration. Mariott[17] has pointed out that after a period of dehydration the administration of water

causes an immediate dilution of the blood and an abrupt fall in the concentration of hemoglobin; when anhydremia is present the secretion of urine is greatly decreased and the colloidal osmotic pressure, according to Starling,[6] approaches the arterial pressure in the renal arterioles.

Anuria is a most serious problem as a complication of diabetic coma and occurs at varying intervals after the onset of extreme acidosis. In the pre-coma interval excessive thirst, polyuria and vomiting place an unusually heavy burden upon the renal capillary endothelium. Nitrogen retention may be of sufficient degree to cause a severe degree of renal insufficiency and, together with oliguria and albuminuria, the presence of hyaline and granular casts occurs frequently. Bulger and Peters[3] have shown that dehydration and not the increase of blood urea may be operating as a cause of failure of renal function, and that increased endogenous nitrogen metabolism of salt as the result of dehydration caused the fixation of sodium and chloride in the tissues as manifested by the marked edema. The amount of fluid given was adequate but not unusual. This explanation may, as Blum, Graber and Van Caulaert[8] have suggested, account for the azotemia in diabetic coma, and be the result of loss of salt into the tissues. The substitution of the potassium ion for sodium seemed to clear the edema rapidly. Atchley and Peters,[9] as quoted by Lande,[10] have stated that "with the breakdown of carbohydrate metabolism there is an increased excretion of electrolytes normally present in the intra and extra-cellular fluids, particularly sodium and potassium. As a result of the rapid loss of water, sodium, and potassium there develops a depletion of base in the body sufficient to cause dehydration of tissues." While the findings in this case were of normal or slightly elevated plasma chlorides, this has not been a constant finding and, as Fullerton,[2] and Lyall and Anderson[11] have shown, may be a part of the general dehydration. The evidence of anuria and uremia here is probably a transitory finding, the result of unusual amounts of ketone bodies, acetone, and diacetic acid that act as a renal irritant and produce the picture of "renal block." As Coburn[12] has emphasized, the greatest factor in overcoming the acute renal insufficiency is the forcing of large amounts of intravenous fluids to wash out the ketone bodies and thereby overcome the circulatory-renal collapse. Root[13] has stated that if large amounts of fluid parenterally fail to bring about urinary secretion, the physician may consider that nothing more can be done. An analysis of plasma chlorides showing a low level may be an indication for giving hypertonic saline in overcoming the anuria. This young patient's survival was in no small measure due to heroic doses of insulin and to persistent efforts in forcing fluids to overcome the anuria.

It is entirely possible that unusually large amounts of fluid and insulin will be found necessary in the future in overcoming extreme dehydration and anuria. In combating the anuria it is also necessary to increase carbohydrate metabolism, and while no definite rule can be given as to the amount of insulin necessary the tendency at this time is to give large amounts until the patient is well out of coma and the acidosis is controlled. This procedure is carried out with considerable less timidity than that characterized by the relatively small doses of insulin that were given from 1923 until 1936. In the former period, Baker[18] states that an average dose was only 67 units in the first twenty-four hours, and during the latter period 148 units. The amount of insulin necessary may depend on two factors, the presence or absence of infection and the degree of acidosis as revealed by the depth of unconsciousness and the chemical findings. According to Joslin et al,[1] in 436 cases of coma, 28 were given 500 units of insulin or more during the first twenty-four hours after admission. Root and Riseman[14] have reported 1280 and 850 units, respectively, during the first twenty-four hours. Weiner[15] has reported a case of a man, aged 58 years with extreme insensitiveness to insulin, who in one twenty-four hour period was given 3250 units of unmodified insulin to bring about recovery from acidosis. In children as little as 28 units may be all that is required to relieve diabetic coma. Hypoglycemia, of course, should be avoided.

As this young woman presented no evidence of infection the duration of coma probably accounted for the unusual amount of insulin necessary to bring about recovery. This was probably not due to insulin resistance but to neglect of diabetic management. The large amount of

insulin required may have been due, in some measure, to the use of dextrose solution at the onset of coma. Root and Riseman[14] have emphasized that use of dextrose during severe and profound coma may act as a poison and increase in severity the seriousness of this emergency as well as contribute toward anuria. However, large doses of insulin were necessary because of the extreme degree of acidosis, the marked dehydration and the concomitant anuria.

CONCLUSION

1. While no definite rules for determining the correct amount of insulin can be made, neverthless large doses may have to be given to correct the disturbed carbohydrate metabolism.

2. Factors to be considered in treating diabetic coma are: (1) the duration of coma, (2) the presence of infection and (3) the age of the patient.

3. In the case reported, unusually large amounts of fluid and insulin were necessary to overcome a severe degree of coma with anuria.

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REPORT OF THE COOPERATIVE PROGRAM FOR THE CONTROL OF SYPHILIS BY THE GENERAL PRACTITIONER AND THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH*

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A successful program for the control of syphilis must make ample provision to diagnose as early as possible every case of syphilis; to institute competent medical care as soon as the diagnosis has been definitely established; to keep infectious cases under medical care until they become non-infectious and to prevent new infections by medical, educational and legal measures. The same well known public health principles towards the detection and prevention of the spread of a communicable disease must be employed in the suppression of every case of early syphilis. This will depend entirely upon the tracing of every infection to its original source and the investigation of every person whom the patient may have exposed.

The control of syphilis must include those cases under the care of private physicians as well as those treated in clinics and institutions. Since the only available statistics in the management of luetic cases have been those treated in clinics, it would seem that the control of privately treated cases has been sadly neglected.

We fully realize that no venereal disease control program can succeed without the cooperation of the private physicians. Although much progress has been made, our goal is far from being reached. We have just begun to concentrate upon our methods of handling these cases and judging from the preliminary results we have

*From the Illinois Department of Public Health, Dr. R. R. Cross, Director.

obtained, we have every indication to believe that a great deal more progress will continue to be made in the future.

Any new procedure in the control of a public health problem will naturally be met by opposition of the medical profession, as well as the laity. It stands to reason that greater amount of opposition will have to be overcome when any new method to control privately treated patients is inaugurated, especially since "finding and treating syphilis strikes at the intimate life of individuals." The greatest problem was to overcome the reluctance of private physicians to allow health officers or investigators to contact the patients regardless of social or economical standing. This resistance was gradually overcome by the tactful and diplomatic manner of handling both the physician and the patient and thereby never losing sight of and respect for the physician-patient relationship.

The medical profession gradually became to realize that all of our efforts were directed to bring its members the necessary facilities to make an early diagnosis of syphilis through our free laboratory service. Free drugs, follow-up and consultation services were also made available to private physicians.

Educational programs were carried on by means of literature, pamphlets, lectures, radio and moving pictures. A year's subscription to the U. S. Public Health Service's bulletin VENEREAL DISEASE INFORMATION was given free of charge to each of the 2,030 physicians reporting venereal disease in 1939.

Additional services rendered to private physicians by the State Department of Public Health include pre-scheduled treatment outlines based upon the principles of treatment recommended by the Cooperative Clinical Group. Refresher or post graduate courses are given regularly at the Chicago Municipal Social Hygiene Clinic. Discussion of personal cases is encouraged and daily inquiries pertaining to some phase of the management of luetic cases is received by this Department.

The response of the private physicians to our cooperation with them to control luetic patients has been so appreciative, that without solicitation they began to report cases by name instead of key or code number and at the present time nearly 85% of all cases of venereal disease are reported by the name.

Educational measures for public information are being employed by cooperating with the churches, clubs, schools, societies and other organizations by furnishing them with literature, pamphlets, moving pictures and speakers on syphilis and gonorrhea. During the past year (1939) we have been receiving an increasing number of requests for speakers on the premarital health laws. We had 126 showings of the movies with an attendance of 13,578. These pictures presented various phases of the control and management of syphilis. There were 285,345 pamphlets on venereal disease and other subjects of a social hygiene nature mailed from this office. The wax moulages on syphilis were exhibited in seventeen C.C.C. camps and nineteen cities where there were venereal disease exhibits. The dissemination of venereal disease literature and information has been very enthusiastically received by the public.

General blood testing programs have been carried out at the request of school and county fair boards, local authorities as well as the Lions, Kiwanis and Rotary Clubs. Industrial surveys for blood tests have been carried on in conjunction with the Division of Industrial Hygiene and in cooperation of the U. S. Public Health Service at the request of various industries. The outcome of the serological examination was considered confidential and those cases with a positive serology were referred to their private physician for treatment. No person was discharged unless he was found to be an industrial hazard, either to himself or fellow worker.

CLEARANCE OF CASE RECORDS — There were 5,459 case records removed from our active files during the past year. These cases were cleared on the information submitted to this office by private physicians advising us of the following dispositions of the cases under their care for syphilis:

Completed Treatment	2877	52.71%
Unable to locate	814	14.91
Refuses treatment	363	6.63
Transferred to State Clinics	297	5.42
Transferred to State Institutions	199	3.62

Moved out of State	242	4.42
Moved to Chicago	94	1.73
Duplicate case reports	168	3.21
Patients over 60 with previous treatment	133	2.42
False positive serology	23	.41
Physicians not using State drugs	39	.71
No funds for treatment	35	.60
Died	175	3.21
Total	5,459	100.00

PRIVATELY TREATED CASES — The most striking accomplishment of our entire control program of venereal disease is the fact that for the first time since the establishment of a Social Hygiene Division of the State Department of Health of Illinois, we are able to submit a detailed report of 2,877* cases of syphilis which had been discharged by private physicians who had reported them as having completed their treatment. These are the first detailed figures ever to be presented by this or any other state in which such a large number of private cases had been treated and discharged by individual physicians. The 2,877 cases of syphilis were under the care of 1,209 private physicians.

Physicians discharged these cases as having (1) completed their treatment; (2) received sufficient treatment to be non-infectious; (3) received a minimum amount of treatment to become non-infectious; or (4) "cured."

There were 1,598 cases of primary, secondary and early latent syphilis and of these 1,355 or 84.8% received at least a minimum of treatment, consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent during the first year of treatment.

TABLE I
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES BY RACE AND SEX

	White Male	White Female	Colored Male	Colored Female	TOTAL	Percent
Primary	279	103	11	8	401	13.94
Secondary	290	293	21	28	632	21.97
Latent	244	256	26	39	565	19.64
Late	578	427	43	76	1124	39.06
Central Nervous System	45	29	4	—	78	2.71
Congenital	34	37	2	4	77	2.68
TOTAL	1470	1145	107	155	2877	
Percent	51.1	39.8	3.7	6.4		

*This is a corrected report submitted some time ago (Annual Report 1939) in which each attending physician was contacted and a corrected resume of treatment obtained.

TABLE II
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES BY AGE AND STAGE OF DISEASE

	Less than 10	10 — 20	21 — 30	31 — 45	46 — 60	61 — 75	More than 75	Total
Primary	—	81	184	111	20	5	—	401
Secondary	—	79	283	209	54	4	3	632
Latent	—	68	273	183	36	5	—	565
Late	—	—	196	506	343	72	7	1124
C.H.S.	—	2	6	33	36	1	—	78
Congenital	38	30	3	1	—	—	—	77
TOTAL	38	260	950	1043	489	87	10	2877
Percent	1.3	9.1	33.	36.2	17.	3.	.4	

The greatest percentage of patients (46.3 percent) having early syphilis fell in the 20-30 age group.

TABLE III
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO THE AMOUNT OF TREATMENT EACH PATIENT RECEIVED BY STAGE OF DISEASE

PRIMARY SYPHILIS

INTRAMUSCULAR INJECTIONS OF HEAVY METALS								
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	4	17	3	2	1	—	—	—	27
20-29	5	31	57	35	22	6	3	5	164
30-39	3	6	29	42	18	14	9	—	121
40-49	—	3	1	7	21	13	12	2	59
50-59	—	—	3	3	3	7	5	4	25
60-75	—	—	—	1	—	—	4	—	5
Total	12	57	93	90	65	40	33	11	401

338 or 84.28% of all cases of primary syphilis received a minimum amount of treatment consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent. 355 (88.5%) cases received continuous treatment and 46 cases had at least one interruption of treatment.

TABLE IV
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO THE AMOUNT OF TREATMENT EACH PATIENT RECEIVED BY STAGE OF DISEASE

SECONDARY SYPHILIS

INTRAMUSCULAR INJECTIONS OF HEAVY METALS								
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	8	18	8	4	2	1	—	—	41
20-29	6	40	97	48	35	15	6	2	249
30-39	—	9	35	65	43	20	17	2	191
40-49	—	1	9	18	28	16	16	5	93
50-59	—	—	1	4	8	15	11	4	43
60-75	—	—	—	1	2	2	8	2	15
Total	14	68	150	140	118	69	58	15	632

545 cases or 86.3% of all cases of secondary syphilis received a minimum amount of treatment consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent. 560 (89.6%) cases received continuous treatment and 72 cases had at least one interruption of treatment.

TABLE V
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO THE AMOUNT OF TREATMENT EACH PATIENT RECEIVED BY STAGE OF DISEASE

LATENT SYPHILIS

INTRAMUSCULAR INJECTIONS OF HEAVY METALS									
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	2	17	9	6	1	2	—	1	38
20-29	6	49	80	69	24	8	4	—	240
30-39	1	16	34	59	33	10	11	3	167
40-49	—	2	9	14	20	16	14	1	76
50-59	—	—	—	—	7	8	9	5	29
60-75	—	—	—	1	1	4	4	3	13
More than 75	—	—	—	1	—	1	—	—	2
Total	9	84	132	150	86	49	42	13	565

472 or 83.5% of all cases of early latent syphilis received a minimum amount of treatment consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent. 390 (69%) cases received continuous and 175 cases had at least one interruption of treatment.

TABLE VI
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO AMOUNT OF TREATMENT EACH PATIENT RECEIVED BY STAGE OF DISEASE

LATE SYPHILIS

INTRAMUSCULAR INJECTIONS OF HEAVY METALS									
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	7	71	49	28	13	4	7	—	179
20-29	10	80	153	108	58	28	16	8	461
30-39	5	10	36	89	59	25	29	9	262
40-49	4	6	8	21	42	23	24	6	134
50-59	—	3	3	4	5	16	14	4	49
60-75	—	1	3	5	6	4	13	1	33
More than 75	—	—	—	—	1	—	1	4	6
Total	26	171	252	255	184	100	104	32	1124

850 or 76% of all cases of late syphilis received a minimum amount of treatment consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent. 517 (46%) cases received continuous treatment and 607 had at least one interruption of treatment.

TABLE VII
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO THE AMOUNT OF TREATMENT EACH PATIENT RECEIVED BY STAGE OF DISEASE

CONGENITAL SYPHILIS

INTRAMUSCULAR INJECTIONS OF HEAVY METALS									
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	2	4	2	1	—	—	—	—	9
20-29	1	3	4	7	4	3	1	1	24
30-39	1	2	5	4	6	5	—	2	25
40-49	—	—	1	1	4	2	1	—	9
50-59	1	—	3	1	1	—	—	—	6
60-75	—	—	1	—	2	—	—	—	3
More than 75	—	—	—	1	—	—	—	—	1
Total	5	9	16	15	17	10	2	3	77

51 or 65% of all cases of congenital syphilis received a minimum amount of treatment consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent. 56 (73%) cases received continuous treatment and 21 cases had at least one interruption of treatment.

TABLE VIII
DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO THE AMOUNT OF TREATMENT EACH PATIENT RECEIVED BY STAGE OF DISEASE

CENTRAL NERVOUS SYSTEM SYPHILIS

INTRAMUSCULAR INJECTIONS OF HEAVY METALS									
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	—	—	—	—	—	—	—	—	—
20-29	2	11	13	11	7	2	2	2	50
30-39	—	—	1	2	6	—	2	1	12
40-49	1	—	—	2	1	1	1	2	8
50-59	—	1	—	—	2	1	—	—	4
60-75	—	—	—	—	—	—	1	1	2
More than 75	1	—	—	—	—	—	—	1	2
Total	4	12	14	15	16	4	6	7	78

65 or 83% of all cases of cerebral spinal syphilis received a minimum amount of treatement consisting of 20 arsenical injections and 20 of a heavy metal or its equivalent. 52 (66%) cases received continuous treatment and 26 cases had at least one interruption of treatment.

TABLE IX

DIAGNOSTIC ANALYSES OF PRIVATELY TREATED CASES AS TO THE AMOUNT OF TREATMENT EACH PATIENT RECEIVED — — — — ALL STAGES OF DISEASE

	INTRAMUSCULAR INJECTIONS OF HEAVY METALS								
Intravenous Injections of Arsenicals	Less than 10	10-19	20-29	30-39	40-49	50-59	60-75	More than 75	Total
10-19	23	127	71	41	17	7	7	1	294
20-29	30	214	404	278	150	62	32	18	1188
30-39	10	43	140	261	165	74	68	17	778
40-49	5	12	28	63	116	71	68	16	379
50-59	1	4	10	12	26	47	39	17	156
60-75	—	1	4	8	11	10	30	7	71
Over 75	1	—	—	2	1	1	1	5	11
Total	70	401	657	665	486	272	245	81	2877

EPIDEMIOLOGY — AS STATED BEFORE THE SUCCESS FOR THE CONTROL OF SYPHILIS DEPENDS ENTIRELY UPON THE CAREFUL TRACING OF EVERY EARLY INFECTION TO ITS ORIGINAL SOURCE AND THE INVESTIGATION OF EVERY PERSON WHOM THE PATIENT MIGHT HAVE EXPOSED. The manner and method of approach to these investigations of the public health officer, nurse or field representative will determine the success or failure of the epidemiological results of venereal diseases. The health officer, nurse, social worker or anyone else associated with the health department who considers it below his or her dignity to contact these sources of infection and to investigate the subsequent exposures must be considered as detrimental to the control of venereal disease programs and their services should be directed to other public health measures and not to venereal disease work.

It is obvious that an infectious disease which is transmitted almost entirely by one method — intimate contact — should be less difficult to follow than one transmitted by insect vectors. This is a problem to be solved by INDIVIDUAL INITIATIVE and is not solved by application of mass methods. "But State action alone — no matter how abundant or necessary — cannot wipe out syphilis. This is not a problem of catching rats or testing water. This is a human problem. Finding and treating syphilis strikes at the intimate life of the individual. The patient immediately raises natural and artificial barriers — the physician alone is capable of breaking through them."

During the past year there were 3,423 venereal disease investigations made for early syphilis — primary, secondary, and latent of less than four years, syphilis in pregnant women and in cases of acute gonorrhea. These investigations included suspected sources of infection (878) in which the actual name and address was given by the physicians in reporting the case; suspected sources of infection (1608) in which the name and address was not given (case finding): and follow-up of discontinued treatment cases (937) in which the physician reported early cases of syphilis have failed to return to continue treatment (case holding). Attention is directed to several very interesting facts which resulted from our epidemiological investigations:

1. We were able to diagnose and place under treatment for syphilis 331 (37.7%) suspected sources of venereal disease infection, and to examine and find negative, 189 (21.5%) as the result of 878 investigations of cases in which the reporting physician gave the name and address of the suspected source. A total of 520 cases (39.2%) named as suspected sources were examined.

ANALYSES OF SUSPECTED SOURCES OF INFECTION
(names given)

Sources placed under treatment	331	37.7%
Sources examined and found negative	189	21.5
Sources outside of State	23	2.7
Sources unable to locate	138	15.7
Investigation not complete	98	11.2
No report of investigation	99	11.2

These cases were personally contacted by our investigator with the permission of the attending physician and by very diplomatic interviews, we were able to examine all suspected sources and place those found positive under treatment.

We were unable to locate 138 (15.7%) suspected sources because on investigation they were found to be either transients or prostitutes with fictitious names and wrong addresses.

The information regarding 23 sources (2.7%) living in other states were sent to the medical directors of the health departments of the respective states for investigation. We have established reciprocal relationship with other states and they have cooperated with us in every way by advising this department of the results of their investigations in these cases.

The fact that 98 (11.1%) of the investigations by our own investigators were incomplete and that we had received no report of the investigations in 99 (11.1%) of suspected sources makes it clear that these investigations were made in the customary thoroughness of a public health investigation of a communicable disease.

2. We were able to diagnose and place under treatment only 128 (7.9%) of 1,608 investigations made for suspected sources of infection in which the actual name of the suspected source was not obtained from the patient. The largest number of cases in this group were 667 (41.4%) in which the source was "unknown." In this group our investigator contacted the reported cases with the attending physician's permission and found that the sources were not known by name or address and that most of the offenders were "pick-ups." In 2,486 contact investigations in newly reported cases, attending physicians failed to cooperate in only 82 cases. There were only 98 cases in which the patient refused to name the source of infection.

ANALYSES OF SUSPECTED SOURCES OF INFECTION
(names not given)

Physician refuses permission	82	5.1%
Patient refuses to name source	98	6.1
Prostitute (house)	138	8.5
Prostitute (street)	30	1.8
Source unknown	667	41.4
Source examined and was negative	37	2.4
Source out of State	84	5.3
Source placed under treatment	128	7.9
Investigation not complete	23	1.5
No report of investigation	278	17.4
Fictitious name	43	2.6

3. The result of our method of "case holding" or follow-up services for discontinued patients has been most encouraging, for we were able to influence 293 (31.2%) to return to the original physician reporting the case and 259 (27.6%) to return to other physicians or to State clinics to continue their treatment, a total of 552 (58.5%) of the number of cases reported as having discontinued their routine treatments were investigated and persuaded to resume treatment. We earnestly believe that our monthly drug letter, which is reproduced and discussed below, resulted in such cooperation by the physician.

ANALYSES OF DISCONTINUED TREATMENT CASES

Cases returned to reporting physicians	293	31.2%
Cases returned to other physicians or clinics	259	27.6
Cases left the State	46	4.9
Cases unable to locate	154	16.5
Cases cured or negative	35	3.7
Cases died	6	.64
Cases not complete	68	7.2
Cases with no disposition	76	8.2

CASE CONTROL OF CASE HOLDING — Our method of "case control" or "case holding" has been found very successful and consisting of a monthly check-up letter which serves as a monthly requisition for free antisyphilitic drugs. This letter indicates the next five weeks' treatment for the patients listed in our records as being under care for syphilis by each doctor. This requisition is to be returned by the attending physician, who indicates his choice of drugs for any patient. If any patient has interrupted his regular treatment schedule, he is requested to fill in the "Discontinued Treatment Notice." EVERY EFFORT WILL BE MADE TO RETURN DELINQUENT PATIENTS TO THE REPORTING PHYSICIAN FOR FURTHER TREATMENT. By this method we are able to have a report, every thirty days, from every physician receiving free drugs, of every patient under his treatment.

I fully agree with the statement recently made by Surgeon General Parran that "when both the State and the physician share the responsibility, syphilis control becomes a reality."

The 248 colleges and universities having modern tuberculosis programs have abandoned the ancient concept of "consumption" — the advanced, serious, contagious, often hopeless stage of tuberculosis. They know early tuberculosis as a sneaking foe that can be discovered long before it causes actual illness. They know that the tuberculin test and the X-ray locate cases early, whereas to await symptoms and stethoscopic findings is to mark time until late manifestations occur. They know that tuberculosis remains chief cause of death in the college age group. They know that at least one-quarter of American college students are infected, as shown by their positive tuberculin reactions. Charles E. Lyght, M.D., Chairman, Tuberculosis Comm., Amer. Student Health Assn., in a letter to college presidents, 1941.

POLIOMYELITIS IN AN INFANT FOUR MONTHS OF AGE DIAGNOSED IN THE PRE-PARALYTIC STAGE

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The occurrence of poliomyelitis under one year of age is infrequent. This fact has been explained on the grounds of a passive immunity in early life derived from the mother. In 1929 Aycock and Kramer demonstrated that the neutralizing power of the serum from the cord blood of eleven out of twelve infants corresponded to that of their mothers. The duration of the immunity is unknown, but by analogy with diphtheria it is assumed to last about six months.

A survey of the age incidence in various epidemics reveals surprising figures. In the 1910 epidemic in the state of Washington there were eighteen cases under one year of age, three cases under six months of age, and a total number of three hundred thirty-one cases all ages. In a study of the 1916 Philadelphia epidemic with a report of seven hundred seventeen cases there were thirty-seven cases under six months of age. In Ohio in the 1927 epidemic there was a total of one thousand, three hundred and eighty cases all ages, of which thirty-eight were under one year, and sixteen under six months of age. In 1931 in New York City there were two thousand and two cases admitted to the city hospitals, of which ten were under six months of age, three of whom were two months old. In all these reports no mention is made of the extent of paralysis. The youngest case reported, two weeks old, occurred in the New York epidemic of 1907. In 1939 Alsen described a case of poliomyelitis in an infant twenty days old, in which there was extensive paralysis of the lower extremities. Thus it may be seen that the disease does occur in infants more frequently than usually suspected.

It must be conceded that the diagnosis of poliomyelitis in the absence of paralysis is very difficult in infancy. Most of the reports do not specify the extent of paralysis, but do imply that paralysis was present. It is for that reason, in addition to other interesting features, that we report the following case of poliomyelitis in a four month old infant.

From the Sarah Morris Division, Michael Reese Hospital.

CASE HISTORY

E.M., a four month old white female infant, was admitted to the Sarah Morris Hospital on September 14, 1940 with a history of having been well until the morning of admission when it awoke around 1 A.M. and began to cry. The infant was fretful and irritable when handled. The temperature was taken and found to be 101°. Later in the day the temperature rose to 102°. There were no convulsions, vomiting, anorexia or irregularity of bowels. The infant was sent into the hospital because her six year old sister had become ill eight days previously with a fulminating attack of poliomyelitis which involved all the extremities and the muscles of respiration on the third day of illness.

Past history revealed a normal development of a full term infant that was still being exclusively breast-fed.

On admission no abnormal findings were disclosed. The infant appeared to be well developed and nourished for its chronological age. However it was irritable and cried a good deal during the examination. There was no neck rigidity or bulging of the fontanelle. The urine was negative. The leukocyte count was 21,350. In lieu of the absence of findings, it was decided to closely observe the patient. Salicylates were administered.

The following morning (9/15/40) the temperature was still elevated at 102°. The picture had changed very little, except that if anything, the child was more irritable and more restless. There also seemed to be generalized hyperesthesia. Stroking along the spine caused the child to cry vigorously. In crying the infant became rigid and a tremor of the head and of the extremities was noted. Resistance of the spine to anterior flexion was not wholly voluntary. In view of the history of contact, absence of other abnormal physical findings, hyperirritability, and continued elevation of fever, a spinal puncture was done. The pressure was definitely increased, and the fluid had a ground-glass appearance. The Ross-Jones test was positive. There were 276 cells, of which 68 per cent were lymphocytes and 32 percent were polymorphonuclear leukocytes. The total protein was 40 mgm. per cent, the chlorides 723, the sugar 57.5. Direct smear and culture were negative. We felt that we were dealing with a case of pre-paralyic poliomyelitis.

Therapy was immediately instituted. Because of the severe and fulminating character of the disease in the older sibling, and the apparent deficient inherited immunity, unusually massive doses of convalescent poliomyelitis serum were administered intravenously. One hundred twenty c.c. of serum was given in the morning, and repeated in the evening, a total of two hundred forty c.c.

The fever subsided within forty-eight hours after initial serum therapy. On 9/16/40 the infant was still irritable, fever was 102°, but there was no evidence of paralysis. The tremor was less apparent. There was no disturbance in bowels. On 9/17/40 the fever was lower (100°). Irritability was much less marked. The infant ate well, and grasped at objects. On 9/18/40 the temperature was normal all day. All the extremities moved well. The baby's disposition was a happy one. From this time on the course was uneventful.

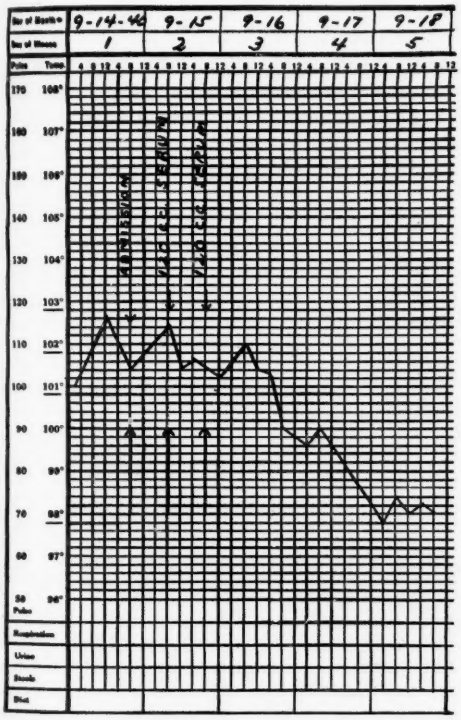

Figure 1 — Temperature curve of four-month old infant with poliomyelitis.

DISCUSSION

There were several interesting features about this case. It is very unlikely that a diagnosis of poliomyelitis would have been made before paralysis set in had not the older sibling had the disease. In view of what happened to the sister, and the apparent lack of immunity in the infant itself, the course would probably have been a severe one.

We know that the incubation period in poliomyelitis averages from seven to fourteen days. The fact that the infant became ill eight days after the sister makes it difficult to state the source of infection for the infant. Whether the infant was exposed to the original source or to the sister remains debatable.

The symptoms that aroused suspicion were mild. The hyperesthesia and hyperirritability were the outstanding features. Characteristic symptomatology of preparalytic poliomyelitis was absent. There were no gastro-intestinal symptoms, bulging of the fontanelle, or neck rigidity. A suggestive finding was stroking along the spine which caused the infant to cry.

Extensive serotherapy was administered early in the disease, and the infant made a prompt recovery without any paralysis.

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PRURITUS IN MEDICINE AND IN DERMATOLOGY

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Itching ranks with pain among the important subjective sensations in medicine, and is of particular importance in the field of dermatology since so many common dermatoses have itching as the important subjective symptom; which varies according to the nature of the cutaneous entity, its site, the cause of the symptoms; and the psychic makeup of the individual. "Itching represents a sensory quality identical with that of protopathic pain[1]." About two hundred years ago Haffenreffer[2] stated that "itching is an unpleasant cutaneous sensation which provokes the desire to scratch." Most of you are well acquainted with the essential points in the differential diagnosis of medical and surgical dis-

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eases that present themselves with pain as the cardinal symptom, and are well versed, from common usage, in the proper laboratory and diagnostic aids e.g. X-Ray and fluoroscope, blood and serum studies, and electrocardiograph to "sift out" the essential diagnostic points in order to come to a correct diagnosis and prescribe the proper treatment "to relieve suffering and prolong life."

In Chart I I have enumerated a number of important cutaneous entities which one must consider in the diagnostic approach to a patient presenting generalized pruritus as the important subjective symptom. The entities are arranged in the order that I have found practical for easy consideration in a succinct diagnostic scheme. I shall endeavor to detail as completely as time allows the essential objective signs to consider in distinguishing these entities from each other; together with mention of the proper laboratory aids, and brief remarks on treatment. On the chart you will note that I have placed the entities of exogenous origin first, and then go on to those cutaneous entities of endogenous origin; and then to those that are dependent upon systemic disease for the origin and perpetuation of the itching.

CHART I

PRURITUS GROUP

1—Parasitic Causes:
- Scabies
- Pediculosis
- Fungi:
  - Ringworm
  - Yeasts (Monilia)
  - Trichophytids-Monilids

2—Eczema

3—Urticaria:
- Acute-Chronic (Dermatographism)

4—Papulo-Squamous Group:
- Pityriasis Rosea
- Psoriasis
- Lichen Planus
- Seborrheic Dermatitis

5—Constitutional Causes:
- Diabetes — Nephritis
- Jaundice — Blood Dyscrasias

6—Pruritus Hiemalis — Bath Pruritus

7—Senile Pruritus

8—Dermatitis Herpetiformis (Dühring's Disease)

9—Lymphoblastomas:
- Leukemias and Leukemids
- Pseudoleukemia (Hodgkin's)
- Mycosis Fungoides
- Lymphosarcoma

10—Cutaneous Neuroses:
- Neurotic excoriations
- Dermatitis Artefacta
- (Factitious or Feigned eruption)

The parasitic invasions of the skin exhibit characteristic cutaneous lesions, and may occur in people in all walks of life since the acarus scabiei and pediculi are no respectors of persons. Scabies, which is commonly called "7 years itch" is an eruption of the skin of rather frequent occurrence that is characterized by nocturnal itching; the occurrence of erythematous papules often surmounted by edematous crusts, and the associated presence of burrows that represent the course of the female parasite, with deposition of her eggs in the skin; and these burrows are most commonly seen in the webs of the fingers, about the breasts, in the female, about the umbilicus, and on the corona penis. Careful removal of the top of the vesicle at the end of a burrow will often reveal the acarus when the fragment of skin is examined under the low power of the microscope. In the adult the face and scalp are rarely involved. In babies and young children, the palms and soles may be involved. The diagnosis of scabies is comparatively easy in the presence of the characteristic lesions; just described, with an associated history of contagion and involvement of other members of the family, nocturnal exacerbation of the itching, and its beneficial response to sulphur therapy. In the treatment of a family infected with scabies, it is essential that all members of the family be treated at the same time. Sulphur is the common remedial agent and may be used in various forms, but I prefer the so called twenty-four hour treatment with Danish ointment described by Greenwood.[3a] The Danish ointment is a complex formula that is hard to prepare, and since it can be procured in proprietary form[3b] it can be readily secured for use by all[3b] in any community. After a warm bath, at which time all affected areas are rubbed briskly with a well lathered wash cloth, the body is dried, and then anointed with Danish ointment[3b] from the chin to the ankles, with an extra "rubbing in" over affected areas. The ointment is allowed to remain on the skin for twenty-four hours, then another bath is taken, as before, and if, as occasionally happens, itching is present as the result of sulphur dermatitis

in sensitive individuals, a soothing lotion like calamine liniment (N.F.) is applied. Fresh night clothes are applied, and all beds previously slept in should be stripped of their linen, and the same carefully laundered or cleaned to prevent re-infection from this source.

Pediculosis — Since this parasite lives in the clothing; all clothing must be removed and sterilized by steam or heat in the process of laundering. The patient should take a warm bath during which he has a thorough scrubbing with soap and water, and after carefully drying the skin; following the bath, it is well to rub into the body a 1:1000 Bichloride of Mercury solution. This solution can be continued night and morning for a couple of days to make certain that all parasites are destroyed.

Yeast infections of the skin are common in those areas where the cutaneous surfaces are in apposition such as in the inframammary areas, the creases in the pendulous folds of the abdomen of obese individuals, and in the groin, and occasionally in the axillae. When a person in middle life presents a pruritic markedly inflammatory eruption in the inframammary areas, the possibility of a diabetes in the patient must always be considered, and it is important to rule out glycosuria and hyperglycemia. In the absence of a diabetes, such involved areas respond well to drying lotions like calamine lotion (N.F.) and the use of bland dusting powders. Resistant areas may be painted with 3% aqueous solution of gention violet each morning and the use of a lotion or powder at night.

The ring worm infections of the feet ("athlete's foot") usually present themselves as an intertriginous involvement between the toes, a hyperkeratotic or vesicular eruption on the soles; and in the vesicular type there may be considerable pruritus of the affected regions. Deep vesicles of a "sago grain" type may appear upon the palms (trichophytids), and these lesions may be intensely pruritic. In this type of involvement it is essential first to clean up the infection on the affected feet by wet dressings of potassium permanganate solution of 1:3 or 5:000 dilution together with fractional X-Ray; the use of a fungicidal powder and a fungicidal ointment, e.g. Whitfield's ointment (N.F.) or one containing oxyquinoline benzoate. Large vesicles or bullae should be opened under antiseptic conditions, and then the parts soaked in permanganate solution.

Eczema[4] is a term most often used by both physicians and laymen in referring to any nondescript superficial non-infectious inflammatory itching eruption. The concept of eczema varies with the individual dermatologist or practitioner, and the present tendency is to exclude all forms of dermatitis which have a definite cause. With improvements in etiologic research, and investigative methods in obscure dermatoses, the large group of eruptions previously included under this heading has been greatly restricted. The term eczema, in a strictly limited sense, has been used to describe general or localized patches of dermatitis of unknown etiology. When the exciting factor becomes known it is called dermatitis with the addition of a qualifying adjective to indicate its etiology. In the old conception of eczema a large number of cases of dermatitis due to contact with various irritants was included, and this group has been narrowed down in the light of fruitful investigation in industry[5a, 5b] and in the causal irritants in ordinary household contacts, and even the irritant action of soaps. Many eczemas have been found to be dependent upon allergic causes such as fungi, bacteria, metabolic products or certain foods. Time does not permit a detailed discussion of neurodermatitis and atopic eczema. From the discussion thus far, implying a complex etiology for eczema, it is obvious that the management of eczema frequently taxes the therapeutic resourcefulness of the practitioner, and that all possible exogenous[6] causes be first ruled out, and then avoided; and bland soothing methods of treatment used. With exacerbations in a patient, that bear a definite time relation to irritant contacts or the ingestion of certain known offending foods; or allergic investigation, or elimination diets[8], revealing specific sensitivity to articles in the patient's diet, it is well to interdict the use of these foods preparatory to or in conjunction with local therapy. In acute eczema the use of soothing lotions and bland ointments are indicated, to be followed by ointments containing Ichthyol, Naftalan; or washed Crude Coal Tar combined with zinc oxide, corn starch and vaseline (White).

Urticaria is a common dermatosis characterized by the presence of wheals, pruritus or "hives" as the sole primary signs. The lesions develop rapidly to a variable intensity associated with pruritus and may rapidly regress, leaving no visible marks in the acute type. The lesions may appear on any part of the skin, and many of you are acquainted with that type of giant urticaria involving the lips and mucous membranes of mouth and throat, where breathing has been difficult for the patient, and you were wary of the patient's welfare before the swelling subsided. In the acute types there is frequently a history of previous ingestion of unusual foods, e.g. shell fish and sea food, or strawberries, or the ingestion of some article of diet to which the patient has, from previous experience, known to be sensitive. Drug ingestion[7] may also be a factor. In these cases withdrawal of the drug, local soothing therapy, starch baths, alkalies, and a mild laxative together with calcium or Sodium Thiosulphate by intravenous injection are often helpful in shortening the period of the acute attack. Chronic urticaria is a much more formidable therapeutic problem. It is wise to forbid the use of alcoholic beverages, check carefully the ingestion of all drugs,[7] e.g. aspirin, and try to establish a "time relation" between the ingestion of commonly known offending foods and the appearance of the eruption. In protracted cases the use of elimination diets[8] may be of value. The factor of emotional tension[9] must also be considered, and in these cases the use of calcium gluconate by injection or per os, or the use of autohemotherapy can be considered. The papulous squamous group includes that large group of dermatoses in which the eruptions are characterized by papules and associated scaling, and where itching is a variable feature.

The clinical picture of pityriasis rosea is characteristic and well known by the onset of the "herald patch" and the occurrence of oval scaling lesions parallel with the lines of cleavage of the skin and with each other, and with the greatest involvement of the axillae, and sides of the trunk. This is a non-contagious self-limited cutaneous disease in which soothing local applications, e.g. calamine liniment with 1% phenol is indicated together with corn starch baths, and sub-erythema doses of the ultraviolet light to shorten the course; and make the patient more comfortable.

The picture of psoriasis, I am sure, is well known to all of you, and needs no further detailing here. The therapeutic response of this disease is still a variable one, and remains an important and difficult task for the physician. Its cause is still unknown, and time precludes a detailed discussion of the pro and con of the various new available therapeutic suggestions in this disease, and for this discussion I refer you to some of the newer texts on dermatology and dermatologic therapy.[10] I Aching is variable in psoriasis and, as a rule, is not marked.

The Grütz low fat diet has been advocated in this disease, and I might tell you that while it has given great benefit in some cases, the response in others has been quite variable.

Lichen Planus is a papular disease of the skin and mucous membrane in which smooth glistening angular papules, associated with more or less itching, occur on the flexor aspects of the wrists and forearm, and may be associated with generalized distribution of papules on the trunk. Its exact etiology is unknown, but the factor of an emotional strain or shock in its etiologic relationship is one to be seriously considered. In treatment, mental and physical rest should be obtained, and X-Ray used over intensely pruritic areas or over the spine[11] together with Mercury with Chalk or Arsenic by mouth and 1% Bichloride of Mercury in normal saline, or Mercury Salicylate in oil, intramuscularly, may be used. Soothing antipruritic lotions should be used, as indicated.

In seborrheic dermatitis we have an inflammation dependent upon a constitutional condition. Seborrhea is characterized by excessive sebaceous activity and disturbance of fat metabolism. The parts affected are the so called seborrheic areas where the oil glands are most numerous, e.g. the scalp, nasolabial region and mid portion of the chest. Itching of variable intensity may be associated with the cutaneous signs. The involved patches in this condition are greasy and scaly. The local treatment of this condition begins with proper care of the face, and scalp; shampooing and the use of a good soap. Sulphur and salicylic acid ointments are applied to the affected areas, the patient put on a low fat diet, and chocolate, nuts, and

starches avoided in the diet. Sub-erythema doses of ultraviolet light to the trunk and scalp are beneficial. Sulphur in lotion or ointment form is of value for topical applications. Vitamin B Complex in capsule form per os is also beneficial.

After having eliminated the entities just discussed as factors in the cause of itching in a patient in question, then it becomes necessary to rule out the constitutional causes that may contribute to itching, e.g. diabetes, nephritis, and jaundice, the latter being one of the common and very important causes of generalized pruritus. Here, however, the icteric tinge to the skin and sclerae will aid in the diagnosis of the cause and confirmation may be obtained by appropriate laboratory investigation for the icterus index, blood bilirubin values, and appropriate history and medical check-up as to the cause of the bile stasis. Soothing antipruritic applications such as bland ointments and lotions containing Phenol; plus appropriate treatment to the pathology in the gall bladder and liver are indicated. If the cause of itching is still obscure, then it is essential to do a blood count to see if there is any alteration or increase in the white blood cells. This portion will be elaborated on later when the lymphoblastomas[12] are discussed.

Pruritus Hiemalis or winter itch denotes that type of itch which affects certain individuals in the fall and winter months. The skin of these patients is usually dry, and in women, who bath frequently, the incidence of this condition is closely linked up with bathing and may be due to strongly scented soaps; in response to the skin health and beauty promises made them by certain "radio commentators." Except for general dryness of the skin, and occasional mild scaling, there may be no skin lesions with the exception of a few scratch marks over areas that have been recently irritated. The reduction of the frequency of bathing, and the use of linit corn starch, almond meal or bran in the bath is indicated together with an unscented superfatted soap. If these simple measures do not suffice for relief then one must consider the possibility of deficiency of Vitamin A being a contributory factor, and it is well to give the recalcitrant cases at least 50,000 units of Vitamin A daily. The use of local oily preparations, e.g. nivea skin oil rubbed on the body after bathing and on retiring, is also beneficial.

In the aged individual with a thin wrinkled skin and little subcutaneous fat; senile pruritus may occur and itching is frequently the commonest subjective symptom. General examination for contributory factors, e.g. arteriosclerosis, sub-threshold uremic states, and prostatism must be looked for. The wearing of warm underclothing, and daily massage of an oily lotion, e.g. nivea oil should be considered. Any constitutional conditions should be treated, and intractable cases sometimes respond to the use of the androgens or may require a change to a warmer climate.

Dermatitis Herpetiformis is a chronic recurrent cutaneous eruption associated with itching and characterized by the development of polymorphous lesions, papules, vesicles, bullae and wheals which show a tendency to grouping, especially on the trunk. Itching is usually intense, and may be associated with stinging and burning sensations. The eruption is of chronic recurring character usually associated with eosinophilia and a good state of general health. Eosinophils are also found in the serum of the bullae and vesicles, when present. The disease is often refractory in its response to treatment, and suberythema doses of ultraviolet light as a general body bath is indicated together with arsenic in the form of Asiatic pill or Fowler's solution by mouth, or Sodium Cacodylate by injection. Liver Extract, Calcium Gluconate and autohemotherapy has also been used with benefit in some of these cases.

Lymphoblastomas:[12] The Lymphoblastomas represent a group of nepolasmas originating in the hematopoietic and reticular tissues. The various type are closely related, and transitions from one into the other have been reported. The bormis are those enumerated on the chart, and this group is often spoken of as the white blood cell dyscrasias, and are often associated with varied types of skin lesions and a very severe type of generalized pruritus. The cutaneous phenomena, may be of generalized character, and range from the erythema multiforme type of lesions to exfoliative dermatitis. When a patient is seen with chronic intractable pruritus and a nondescript multiforme type of eruption on the skin, or an associated generalized exfoliative dermatitis, it is important to examine

the blood to rule out any evidence of increase or change in the white blood cells. One should also carefully examine for adenopathy in such a case, and remove a gland for histologic study, and the results of these examinations will usually place the case in the proper classification. The prognosis in most of these entities is grave, and treatment, as a rule, only palliative.

The role of the psyche has been receiving attention by the dermatologists as well as the internist, and the psychoneurogenic reactions of the skin[13] have been discussed by many writers. Neurotic excoriations[14] are asymmetric eruptions produced voluntarily by the patient who is siezed with an uncontrolled desire to scratch or injure his skin, and the cutaneous eruption may vary from a simple scratch mark to a coin-sized excoriation or ulceration. These patients usually present stigmata of hysteria, e.g. decrease of the corneal and pharyngeal reflexes with geometric areas of hyperesthesia and hypoesthesia. Many of the individual lesions sometimes exhibit a wedge-shaped form from implantation of a finger nail in the skin together with a linear excoriation extending from this wedge point, and this should make one suspicious of a factitious dermatitis. The cooperation of the patient, after a full discussion in a sympathetic manner, of the nature of the eruption, and the use of antipruritic lotions are advisable. Bromides and thyroid[14] are also of aid in the treatment of these cases. Intractable cases may require psychiatric care.

Factitious dermatitis artefacta is an artificial dermatoses produced by the patient by scratching or digging into the skin or burning the skin with chemicals or some mechanical means to obtain sympathy. In this connection, I should like to relate briefly the history of a patient who came under my care some years ago. A girl in the early twenty's from Kentucky was employed as a nurse girl in the home of a dentist in a Chicago suburb. She enjoyed her new surroundings very much, and liked living in the Chicago region much better than in the small community from which she came. After a reprimand for inefficiency her employer indicated that she might have to send her home, and this disturbed the girl since she did not want to return home. She retired to the attic of the house in which she was employed to meditate over her plight, and her eyes struck a can of Drano on an attic shelf, and she thought that if she could feign illness her employers would certainly not send her away if she was not well. She accordingly moistened the Drano and applied it to scattered areas on her skin with resultant superficial ulceration, and presented herself at the skin clinic for advice and treatment, where I saw her. The bizarre character of the lesions, the elongated droplet-like formations where the caustic liquid had run over the side of the thigh, over the iliac crests were "tell-tale," and when this patient was confronted with the fact that these lesions may have been produced by her, she readily admitted the conflict in her life, and the reason for producing the lesions. This case was handled relatively simply with psychiatric aid. Many, however, are much more complicated and require long patient psychiatric handling to run down the cause and obtain a good therapeutic result.

I have tried, in the short time allotted me, to give you a perspective, with the aid of a chart (1), of a number of cutaneous entities that must be considered in any case of generalized pruritus. I have also attempted to touch the signal spots in differential diagnosis. My therapeutic comments have, of necessity, been brief because I feel that after you have once classified an eruption you can then refer to any dermatological text book or a therapeutic text[10] for more detailed therapeutic information. I have also attempted to show that a patient with pruritus who presents cutaneous signs may be suffering with a skin entity of exogenous origin or varied internal origin, and that the pruritus may be the cutaneous expression of systemic disease, and it then behooves you to use your diagnostic resourcefulness to "run down" the cause of the itching by proper clinical and laboratory examination of the patient.

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THE TREATMENT OF SAPHENOUS VARICOSITIES

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CHICAGO

During numerous discussions of the varicose vein syndrome a series of identical questions have been repeatedly raised. This indicated that there still exists an imperfect understanding of the factors underlying the varicose state and their relation to the mode of treatment. For this reason a summary and chart of the modern management is presented which should clarify the situation. This plan is safe, simple, and uniformly satisfactory. It is based on certain fundamentals of anatomy and physiology which have been described in detail in a previous paper.

Varicose veins almost always involve either the long or short saphenous or their tributaries. These dilatations are often associated with valvular incompetence which is, in turn, responsible for the pathological circulation within the vein. Slowing of the rate of flow takes place, and in advanced cases reversal of the direction may occur. Straining, coughing, or any effort which increases the intra-abdominal pressure will compress the soft walled caval vessels and produce a rapid elevation in pressure within the incompetent saphenous vein. This surge is transmitted down the length of the blood column damaging vessel walls, valves which may still retain some function, and even the capillary bed. It is this trauma, together with stasis, which is responsible for the progressive development of varicosities and their complications. The interruption of this pathological pattern is the aim of modern treatment.

Saphenous varicosities fall then into two practical categories; those in which the valves are apparently functioning normally, and those in which they are incompetent. The first group are usually isolated saccular or cylindrical dilatations in which there is as yet only a moderate amount of trauma and stasis with no clinical evidence of venous reflux. The second and more important group includes those cases in which there is involvement of the whole long saphenous vein associated with venous reflux. *The management of the condition is determined by the group in which the case belongs.*

Cases may be separated into the two divisions by performing the classical Trendelenburg test. This test and the interpretation is described in the accompanying chart.

In cases where there is a negative Trendelenburg test, simple injections of a sclerosing solution will yield a high percentage of cures and produce a satisfactory cosmetic result. In these vessels there is little back pressure and consequently little tendency to recanalization.

Where incompetent veins exist, and this is the more common condition, some means must be devised to prevent the transmission of the pressure surges into the defective vessels. If these varicosities are obliterated with a sclerosing solution, recanalization almost always occurs. A more radical procedure is necessary to obtain a permanent result. Surgical ligation of the incompetent veins must be performed. Most often, a high saphenous ligation (at the Fossa ovale) is necessary. Occasionally one or more incompetent communicating veins must be tied off, and rarely, an incompetent short saphenous.

Incompetent communicating veins have not been found as frequently as in Linton's clinic. Consequently, ligations of this type have been performed only occasionally. When done, they have been limited to local dissection, ligation,

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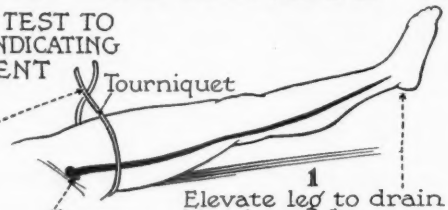
TREATMENT OF SAPHENOUS VARICOSITIES

USE TRENDELENBURG TEST TO CLASSIFY CASE, THUS INDICATING TYPE OF TREATMENT

A COMPLETE PHYSICAL EXAMINATION and DETERMINE:
↓
BLOOD PRESSURE
WASSERMAN REACTION
URINARY CONTENTS



TYPE OF CASE — TREATMENT

I. NEGATIVE TRENDELENBURG TEST (WHERE VALVES FUNCTION NORMALLY)

Tourniquet in place. Vein stays empty 1 min. It fills slowly from capillary bed.

When tourniquet is removed, there is no change in the tension within the vein.

TO TEST FOR SENSITIVITY inject intravenously 0.5 cc. of 2% sodium ricinoleate. If no allergic reaction, therapeutic doses of 2.0 cc. may be injected at weekly intervals. Usually two injections are given at each visit. If veins are large, inject with leg elevated. If varicosities are small, inject in the standing position.

II. POSITIVE TRENDELENBURG TEST (WHERE VALVES OF LONG SAPHENOUS ARE INCOMPETENT. OCCURS IN 70-80% OF CASES)

Tourniquet in place. Vein stays empty for 1 min.

With removal of tourniquet, the varix fills immediately from above downward so that tension within vein is suddenly increased.

TEST FOR SENSITIVITY. One week later perform a saphenous ligation at the sapheno-femoral junction. All tributaries should be tied and sectioned. Expose trunk vein, inject 4 cc. of sclerosing fluid. Doubly ligate vessel and excise the intervening segment. Two weeks later injection of remaining patent dilatations is begun.

III. DOUBLY POSITIVE TRENDELENBURG (INCOMPETENCE OF COMMUNICATING OR SHORT SAPHENOUS VEINS)

Tourniquet in place. Vein fills within 20 sec.

Site of the incompetent vein

Locate site of incompetent vein by placing constrictor below calf. Have patient stand. If defect is above tourniquet, the segment below the constrictor will remain empty. Then compress vein a few inches higher until a level is reached where filling occurs from below. Thus various levels are tested until defect is exactly located.

TEST FOR SENSITIVITY. One week later, at the time of operation, mark with an indelible dye the site of the incompetence. This is where the incision must be made. All incompetent channels are tied off where they perforate the investing fascia. 2 cc. of sclerosing solution may be injected in the distal segments. Two weeks later obliteration of the remaining channels is begun.

If an incompetent long saphenous as well as a communicating vein exists, locate with two tourniquets. The first is applied above the level of the communicating vein (a) and the second (b) just below the fossa ovale.

When the patient stands and (b) is removed, there will be filling from above downward if the valves in this segment are incompetent.

RECURRENCES ARE DUE TO:

1. INJECTION, WITHOUT LIGATION, OF A VEIN IN WHICH THERE ARE INCOMPETENT VALVES.
2. LIGATION OF AN INCOMPETENT VEIN TOO FAR BELOW THE FOSSA OVALE.
3. NEGLECT TO TIE OFF ALL TRIBUTARIES AT THE SAPHENO-FEMORAL JUNCTION.

and division of the vessels where they perforate the investing fascia of the leg. Short saphenous ligation may be performed through a transverse incision in the popliteal fossa at the junction of the superficial vessel with the deep (popliteal) vein.

The great majority of cases need a high saphenous ligation. This has, in recent years, been combined with the retrograde injection of a sclerosing solution at the time of operation. Complete thrombosis of the trunk in the thigh and often down to the calf of the leg is obtained, thus reducing the number of subsequent injections necessary to occlude the varices. In addition, it insures complete obliteration of the varix in the thigh. This is helpful in the obese patient where the veins are deeply inbedded in fat and difficult to locate and inject through the skin.

These ligations must be treated as major surgical operations and it is courting danger to perform them in the average office. As strict asepsis is necessary, they should be done only in the hospital or well equipped surgical out-patient department. The patient may go home immediately after the operation if he is within call of the surgeon, but it is preferable to have him remain over-night in the hospital so that if any bleeding occurs it may be quickly checked.

One week before operation a small dose (0.5 cc.) of the sclerosing solution is given intravenously to test for any allergic sensitivity. Sodium ricinoleate (a Wm. S. Merrell Co. product) is preferred because in the two and one-half years it has been used, there have been no allergic reactions and only two sloughs. This covers experience in two clinics and in private practice. The two percent strength is used in preference to higher concentrations because it produces satisfactory obliteration of the veins with less pain, and with less danger of producing a slough if peri- vascular infiltration should occur.

The technique of high saphenous ligation is as follows: The inguinal region on the involved side is shaved and cleaned with water, green soap, and alcohol. The patient then stands and the course of the trunk vein is marked with an indelible dye. This is facilitated by doing a percussion-palpation test (Schwartz). The varicosities are tapped or quickly compressed so that an impulse is transmitted the length of the semi-rigid column of blood. This impulse may be palpated up to the Fossa ovale and it is here that it should be carefully marked. Testing the vein in this manner helps place the incision directly over the main channel.

The patient is then placed on the operating table and prepared and draped in the usual manner. Local anesthesia with 0.5 or 1.0 percent novocaine is used. A Pitkin syringe aids infiltration and helps eliminate the danger of an intra-venous injection of the anesthetic.

The Fossa ovale usually lies about one inch lateral and one inch below the pubic spine and

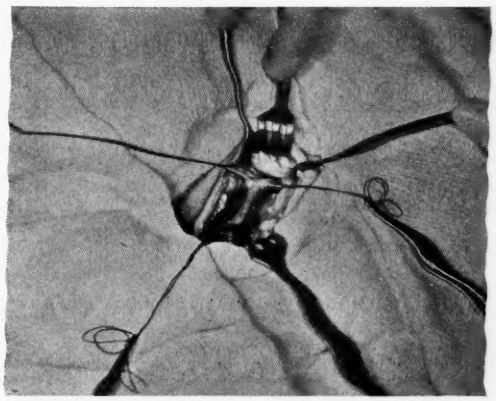


Figure 1. The saphenous vein and tributaries at the site of ligation. Note the saccular dilatation at the lower margin of the incision.

this is the ideal site for the incision. However, in many people particularly the obese ones, this location falls in the inguinal crease. Any incision here is apt to become infected because of maceration of the skin and an associated large bacterial population. We prefer to make the incision just below the inguinal fold (within one inch) and parallel to the flexor creases. This oblique exposure is adequate to isolate the vessel and its tributaries and results in a good cosmetic scar.

The skin is incised directly over the saphenous trunk; the wound being about two and one-half inches long. The vessel is located between the superficial and deep investing fascias. If there is difficulty in finding it, one may move the leg

and palpate the belly of the Adductor longus muscle which is just medial to the vein.

The trunk and all tributaries in the region of the fossa are dissected free with a minimum of trauma to prevent the formation of a thrombus. (Figure 1) The branches are doubly ligated and sectioned. Two ligatures are placed around the saphenous trunk, the upper one as close to the junction with the femoral as is possible. These are not tied but left loose until after injection of the sclerosing solution. Two cc. of the two percent sodium ricinoleate is used. It has never been found necessary to use larger volumes of solution or the catheter method described by Pratt to obtain complete obliteration of the varicosities down to the mid-calf.

The sclerosing solution is drawn into a luer-lok syringe which prevents spilling of the material into the operative field. A bent, short bevel, 19 gauge needle* (Figure 2) is attached to the syringe and the point inserted into the lumen of the vein in the segment between the two loose ligatures. Blood is aspirated to make sure that the lumen has been entered, the proximal ligature pulled taunt to compress the vessel, and the injection made. The bent needle has been of great value in performing the injection, especially where the vessel is located deep in the wound.

The proximal ligature is tied at the junction with the femoral vein, and the lower one is tied as far below as is possible. The intervening segment of vessel is excised. A second ligature may be tied around the proximal stump to safeguard against hemorrhage. Transfixing of ligatures is unnecessary. The superficial fascia is closed with one or two sutures to obliterate the dead space and the skin edges are approximated in the usual manner. Silk is used throughout because less tissue reaction is produced and there is little tendency for the ligatures to loosen.

A figure-of-eight compression bandage is applied to prevent oozing and to close the spaces of the wound. In addition, an elastic adhesive bandage may be applied from the foot to the thigh if there are very large dilatations. This tends to collapse the varicosities and decrease the size of the thrombus so that there is less pain and discomfort.

*Manufactured by the Becton-Dickinson Co.

Whether these patients stay in the hospital or go home they must not go to bed but remain ambulatory. This is to stimulate the circulation, increase the rate of flow of blood, and thus eliminate any tendency for propagation of a thrombus. One week after operation the skin sutures are removed and after another week the injection of any remaining patent varicosities is begun.

This procedure is safe, simple to perform, and is most important in the cure of varicose veins in which incompetent saphenous valves are present.

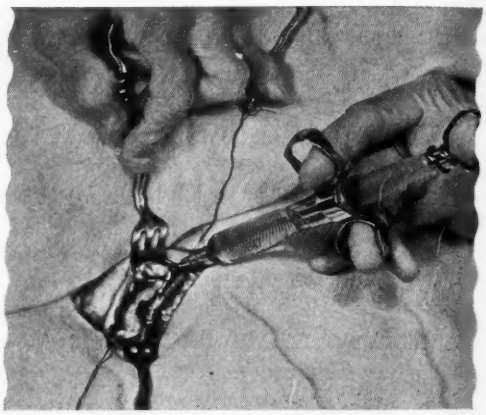


Figure 2. The technique of the injection of the sclerosing solution using the bent needle.

There are only a few contra-indications to the operation. These include the presence of any severe systemic disease, any acute infectious process (whether it be phlebitic or otherwise), abdominal tumors, and senility. The presence of an old deep vein thrombophlebitis is *not* recognized as an inviolable contra-indication. The deep system of veins has a remarkable capacity to recanalize and form new channels. The presence of a chronic pitting edema in these cases is most often due to the destruction of the valves by the phlebitis so that a functional "obstruction" remains. If an actual mechanical block exists, it may be easily demonstrated by a modification of the Perthes test. The patient is instructed to stand and a tourniquet is applied around the thigh tight enough to occlude

the superficial veins. Then the leg is elevated and the tension within the varicosities noted. If the deep veins are occluded, there will be no emptying of the varices; but if patent, the superficial veins will immediately collapse. Incompetent varicose veins which have developed as collateral circulation during the obstructive phase of a deep thrombophlebitis remain after the channels reopen. These superficial vessels only add to the load carried by the venous system and therefore should be obliterated.

Varicose veins occuring during pregnancy, if causing much discomfort, may be injected. It seems preferable to treat these dilatations conservatively with supportive bandages since many of them disappear with termination of the pregnancy. Sclerosing solutions containing quinine should never be used in this type of case.

DELAYED RUPTURE OF THE SPLEEN

(Discussion and Case Report)

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CHICAGO

Cases of contusion and rupture of the spleen with delayed hemorrhage, while relatively rare, present such an interesting problem for clinical and pathological diagnosis when they do occur that it seems worth while to report the case to be described later. Cases of severe contusion of the abdomen with rupturing of the spleen and immediate massive hemorrhage into the peritoneal cavity are frequently attended by contusion of other viscera, as the liver or kidney, and are "blitzkriegs" demanding immediate defense measures of transfusion and operation with grave prognosis. There is no time for meditation and the diagnosis is made specific when the damage is surveyed at laparotomy. The same is true of stab and bullet wounds. These cases are essentially treatment problems and do not find their way into the literature as a rule, except in statistical summaries.

Most of the reported cases of delayed rupture, however, are stories of mistakes in diagnosis. The physician has been lulled to sleep by the smoothness of convalescence following the initial symptoms, only to have a rude awakening a few days later and to realize that his delay has jeopardized the patient's life. Having learned from his experience he reports his case, and hopes he will not make the same mistake again.

It follows that, although these delayed cases are relatively rare, Foster and Frey[1] finding only one in twenty cases of rupture of the spleen in the records of four Denver hospitals from 1927-28, they are the ones reported. Even so, Gardiner,[2] in 1935, stated that there were only about 50 cases in the literature, most of them reported in the last twenty years.

LaPorte[3], in discussing delayed rupture of the spleen, reviews cases reported in French literature, stating that Demoulin in 1904 reported a case operated on in 1885, in which the spleen did not rupture until five days after the accident. Other cases mentioned by LaPorte include that of Routier in 1914, in which a youth of 18 continued playing after a trifling injury and eight days later had violent cramps diagnosed appendicitis, and two cases of Fiolle, who described the quiescent interval and called it a "latent period." (According to McIndoe[4], the first man to use the term "latent period" was Baudet in 1907.) LaPorte mentions six other cases and describes two of his own, the first of which is typical. A gardener of 32 went to bed after a compression injury, improved steadily for two days and then was seized with acute subumbilical pain and weakness. After a few hours the pain shifted to the left hypochondriac region, the face became ashen and the pulse rose to 110. The left upper quadrant was doughy on percussion. Operation through an upper median incision, which was later made L-shaped, showed a spleen with a large subcapsular hematoma from which the hemorrhage was coming. LaPorte offers three explanations for the delayed symptoms: 1. The gradual formation of a subcapsular hematoma, which eventually ruptures. 2. A secondary hemorrhage following primary clotting. 3. The presence of a threshold of hemorrhage which has to be exceeded before hemorrhage takes place. He does not clarify this last theory.

A very complete discussion of the clinical and pathological picture of delayed rupture of the spleen is that of McIndoe[4] in 1932. McIndoe collected 46 cases in which the latent period between the injury and the "catastrophe" was 48

hours or more, varying usually between three and nine days and rarely lasting fourteen days.

McIndoe's own case had a latent period of nine days. He was hit on the left flank by a branch of a falling tree and had pain in the left side for ten minutes and then worked for seven days with slight nagging pain in the left upper quadrant. The onset was marked by severe upper abdominal pain radiating to the back and left shoulder. The pulse was 100, the temperature 99.2°, hemoglobin 48%, red cell count 2,720,000, and the white cell count 25,800. The diaphragm was elevated on both sides and there was a dull indefinite mass in the left upper quadrant which did not shift with position. Operation through a transverse incision showed a hematoma containing two liters of blood and five unattached pieces of spleen, extending over the stomach from the colon to the vault of the diaphragm, and a sixth piece of spleen attached to the pedicle. The pedicle was not bleeding actively.

His explanation of the pathology underlying the delayed rupture is that the blood is held in the splenic substance by the capsule. In minor contusions the hemorrhage is subcapsular and slight and is soon organized so that there is no persistent evidence of any injury, except perhaps slight scarring of the capsule and localized perisplenitis with adhesions. Even if the capsule tears a little, organization of the clot still takes place, though in this case perisplenitis with adhesion is more likely to be noted.

If the contusion is more severe, or has affected larger vessels, that is, vessels in the vicinity of the pedicle or hilum, a larger hematoma will result. If the capsule is not torn this will spread under the capsule. As the serous and fibrous part of the capsule are intimately united, both are mechanically raised from the splenic pulp, so that a subcapsular hematoma forms. There may be several of these hematomas, which tend to unite so that a large part of the splenic capsule is raised and bulging with blood. After a varying time the capsule, the nutrition of which is impaired by stretching, ruptures. If the hematoma is very large and the pressure correspondingly great, the rupture may be large enough to allow free blood to pour from the hematoma into the general peritoneal cavity, with symptons of sharp pain due to rupture, shifting rigidity and tenderness due to peritoneal irritation, and leucocytosis. The hemostatic effect of the capsule pressure is removed and the partially *organized clot is torn apart and active hemor*rhage starts again, causing the pallor, faintness *and tachycardia noted. Sometimes the* rupture is almost explosive or bursting, the spleen being torn to pieces, some of which have been found in the pelvis even.

At other times the capsule has several small cracks or tears either due to pressure from the subcapsular hematomas or made by the external forces at the time of injury. These cracks promptly fill with soft clot and small perisplenic hematomas result. Sometimes, in addition to the soft clot, portions of the omentum adhere to the lacerated edges forming an extra tamponade. Other adjacent organs are involved in the adhesions and the whole left hypochondriac region becomes walled off enough to produce Balances' sign, a dullness not shifting with position. Kerr's sign, pain in the left shoulder, is due to irritation of the diaphragm and is found in other upper left quadrant pathology.

As a general rule, the hemorrhage continues and escape of blood into the general peritoneal cavity takes place, causing irritation symptoms suggesting pathology elsewhere, especially appendicitis, although preoperative diagnoses of ruptured peptic ulcer and subdiaphragmatic abscess have also been made.

A case illustrating these confusing symptoms is reported by Dodd[5]. The patient entered the hospital 40 hours after the injury with a temperature of 100°, pulse 110, and a tender cecum, but no local rigidity. An appendix incision showed blood in the belly. Another incision was needed to remove the spleen, which was twice its normal size and surrounded by "several closely adherent layers of thrombus which peeled off like onion skins. Apparently the blow caused a subcapsular injury and hemorrhage, whose waxing and waning stripped up and ruptured the capsule, forming the laminated perisplenic hematoma."

This "waxing and waning" of hemorrhage is discussed at length by Zschau[6]. Zschau divides delayed rupture cases into two types: 1. Those due to the formation and increase of a subcapsular hematoma, which he terms "two-stage rupture." 2. Those in which the delay

is due to clot formation in the region of injury, whether or not the capsule is involved, and *the later hemorrhage is due to a force reopening* the clotted vessels. The factors affecting these processes include:

1. Changes in blood pressure (the primary and secondary hemorrhage idea of LaPorte.)

2. Variations in the clot forming ability and adhesion forming ability of the splenic reticulum. In this connection Kellogg Speed calls attention to the function of the spleen as the graveyard of red cells, possibly furnishing all the material for clotting.

3. Changes in the volume of the spleen controlled by a center in the cord responsive to stimuli as the ingestion of a meal or the reception of a painful injury. These changes are made possible by the muscle fibers and elastic fibers in the trabecula of the spleen. There is evidence[7] also to show that the spleen changes volume in response to chemical substances in the blood acting through the cerebral bulb.

The diagnostic problem includes consideration of the injury. Too much stress cannot be laid on this, as a number of cases are reported of spontaneous rupture of normal spleens. Zuckerman and Jacobi[8] reviewed 25 such cases, ruling out trauma by lack of history, and pathology by microscopic study. Their case had an acutely congested spleen without attachment to the diaphragm and only loose attachment to the splenic flexure, leaving it freer to rotate than usual. The authors consider this embryological failure to develop normal attachments and consequently increased mobility with tendency of vessels to kink and cause congestion, as the underlying factor in spontaneous rupture. Other authors consider arteriosclerosis[9] responsible. The accidents reported are often very slight bumps, or strains even, as one during labor[10], one at the end of pregnancy,[11] one following massage[12], one after a parachute jump[13], one after coitus[14], one after bending over[15]. These, however, are very rare when one thinks of the hundreds of cases with contusion in the left hypochondrium, left lower ribs and left flank with no evidence of splenic involvement. Keeping the spleen in mind, should be sufficient safeguard in the consideration of etiology.

The real problem is this: If one suspects that he is dealing with a latent period, that is, if there is a little persistent pain and tenderness suggesting possible contusion of the spleen, should one operate early while the patient is in good condition, to prevent the final complete rupture that makes the case desperate? Does a mild contusion of the spleen ever organize and heal? Webb[1] thinks recovery without operation is rare, quoting Turnbull of London as stating that he had never seen a scar of injury to the spleen, and J. S. McCartney, who, in 25,000 autopsy records at the University of Minnesota, saw no instance of healed splenic hematoma, and E. T. Bell to the same effect.

On the other hand Gunther[16] reports a case from New Guinea of a 26 year old laborer who died of intestinal obstruction, whose autopsy showed a spleen twice normal size with a shallow concave scar extending almost the length of the viscus, its edges adherent to the parietal peritoneum, and a cavity at the lower end about one inch in diameter into which peritoneum had grown. A scar, 2″ by 1½″, was present on the left flank over the spleen. The diagnosis was of a penetrating wound of the abdomen lacerating the splenic capsule and causing local infection with healing. This case is not exactly typical as the element of infection enters in.

McIndoe[4] considered healing of small contusions very probable. Zschau[6] states definitely that many ruptures of the spleen are symptomless and heal either with formation of a blood cyst or by organization of clot with scar formation, a process represented by infarcts found at autopsy. He reports a case operated on eight days after injury in which the hemorrhage came from a tear six centimeters long half way through the pulp. This tear was not closed by clot, but in the splenic substance small collections of blood and red infarcts were found showing microscopic organization. He also reports a second case which showed typical symptoms of delayed rupture on the fifth day after injury, hemoglobin dropping to 60, pulse rising from 82 to 110, temperature running a degree of fever, all coincidental with the onset of pain. This case was *not operated* on as the patient responded to a transfusion of 300 cc. of blood and in six weeks had normal findings. Goinard, Viollet, and Marchione[17] state definitely that splenic hematomas are cured by progressive resorption, but admit that these "cures" are much less frequent than in the case of hemorrhages in the pelvis. They describe three cases with x-ray evidence of hemorrhagic cysts following injury to the spleen. One of these was proved

by operation; the others got well without operation. Other cases of "cure" have also been reported.

In one of these, Hunter's[18] case, operation three weeks after the injury revealed nine pints of fluid blood and a transverse laceration of the spleen two inches long filled with organizing clot. As there was no active bleeding the spleen was not removed. Convalescence was complicated by wound infection. The patient was discharged nine weeks after operation. Here again, as in Gunther's case, infection may have increased the tamponade effect of adhesions.

Pemberton[19], however, states that in 800 cases of splenectomy at the Mayo Clinic since 1904 only four showed cysts and none of these gave a history of associated trauma.

In spite of the possibility of spontaneous cure a decision not to operate after diagnosis is made, seems decidedly risky.

Aids in diagnosing a latent period include the two stressed by McIndoe[4]: the symptom of dull pain, remittent or exacerbating, in the left upper quadrant; the finding of slight rigidity in the left upper quadrant, determined by repeated examinations. Others are Kerr's sign, pain referred to the left shoulder, Ballances' sign, dullness in the left upper quadrant not shifting with position, and x-ray films showing an elevated diaphragm on the left side. The development of slight fever and leucocytosis are suggestive. Thorotrast[20] injections, followed immediately by films, may never come into widespread use but excellent films have been made showing rupture of the spleen. There is a large amount of literature on the visualization of the spleen with thorotrast.

Operation, if delayed until the emergency is apparent, as is usually the case, may be done through an L-shaped or transverse incision. Preliminary blood transfusion, transfusions during and after the operation, autotransfusion,[21] have all proved life saving aids to the operation. The operation should be that of splenectomy and drainage is unnecessary.

CASE REPORT

M.S., a 14 year old boy, a few days out of quarantine for scarlet fever, at 10:45 A.M., on June 6, 1936, collided with another boy while chasing a ball, the other boy's head striking him in the abdomen. He was brought to the hospital at once. The emergency room examiner noted "Marked tenderness over the suprapubic area, and marked rigidity of the entire abdomen. Cannot elicit gas gurglings over the entire abdomen." When I saw him at 6:00 P.M., there was considerable rigidity and tenderness in the left upper quadrant, the pulse was 92, and the patient was evidently in rather severe pain. The blood count showed 4,610,000 red cells, 18,600 white cells, and 70% hemoglobin. There was no rigidity or tenderness in the suprapubic region at this time, and I did not order catheterization. I thought that the boy probably had a contusion of the spleen but ordered an x-ray to determine the presence of air under the diaphragm to rule out possible perforation of a hollow viscus. The x-ray report read "The stomach is greatly distended with air. There is no evidence of air under either diaphragm." A blood count taken at 8:00 P.M., showed 4,800,000 red cells, and 13,600 white cells. The pulse was 90 and there was no evidence of active hemorrhage. I decided to wait.

The next day the stomach was still distended but the rigidity was much less. The temperature was 99.2° and on the following day 99.6°. Enemas reduced the distention and gave him enough relief so that on June 9 he sat up and in the evening went home. Here he stayed quietly for two days on a normal diet. I called on him on June 11. His pulse was 72 and he said he had no pain and wanted to go back to school.

On June 13, at 3:00 A. M., the boy's mother called me, saying that he was feeling weak and had vomited and broken out into a cold sweat. I found him pale and clammy with a compressible irregular pulse of 100. There was moderate pain, tenderness and rigidity in the left upper abdomen. I took him directly to the hospital where he was typed for transfusion and a pint of blood given before and another during the operation. The rigidity and tenderness disappeared when he was placed on the operating table. The peritoneal cavity was full of blood and the spleen lacerated so that it was difficult to palpate the pedicle, which required several ligatures. Convalescence was stormy, requiring several transfusions and many glucose infusions with decompression of the stomach and upper intestine with a Levine tube. He was discharged on July 11 and was in good health two years later.

The pathological report on the spleen read as follows:

Gross: Spleen 15 by 11 cm. There is a tear 7 cm. long in the region of the hilum. Section made by cutting reveals many hemorrhagic areas, particularly in the region of the laceration. The remainder of the spleen is red in color and somewhat firm in consistency.

Microscopic: Sections of the spleen made through the lacerated area show a dense deposit of red blood cells. The splenic pulp is covered by red blood cells.

Diagnosis: Traumatic hemorrhage into the spleen with laceration.

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TETANUS TOXOID IN THE PREVENTION OF TETANUS AND SERUM REACTIONS IN ALLERGIC INDIVIDUALS

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Since the introduction of tetanus toxoid by Ramon in 1923[1] many articles have appeared from abroad and in this country. We are particularly interested in its use in normal and in allergic individuals.

The proximity of war and war service emphasizes the importance of the prevention of tetanus and serum reactions. Active immunization by tetanus toxoid is already in use in military and naval forces, especially in those of France, Russia, Italy, Britain and the Dutch East Indies. The United States army, navy and marine corps will almost certainly adopt the procedure in the very near future.

Efficiency In Man — Tetanus toxoid when given correctly prevents tetanus and the many serum reactions which have followed injections of tetanus antitoxin. No case of tetanus has as yet developed in an immunized person, according to Ramon[2]; he states that more than 1,500,000 persons have received tetanus toxoid in France alone.

In the first issue of "Military Medicine," published in March, 1941, there is an interesting observation by Jordan and Halperin[3]. They point out that immunization of the British army with two doses of plain toxoid with a six week interval was introduced more than a year before the beginning of the present war. When the war broke out over ninety percent of the troops in the forward area were fully protected against tetanus. The Dunkirk evacuation battle provided a good test of the efficacy of the treatments. Many men arrived in Britain five or six days after being wounded and without tetanus antitoxin. Not one case of tetanus developed among the ninety percent of troops who had had tetanus toxoid immunization; on the other hand, there were eight cases of tetanus in the approximately ten percent who had not been immunized. Jordan and Halperin emphasize that this is the best and most important clinical test yet available of the effectiveness of tetanus toxoid in man. No doubt, as the war goes on, we shall have many further reports from the various armies as well as from the civilian population which is being indiscriminately bombed.

Efficiency in Animals — Ramon[2] has given convincing testimony concerning the duration of immunity in horses. Since 1925 active immunization of horses by tetanus toxoid has been carried out in France, especially in the cavalry. Thousands of horses[4] have been immunized by two injections of 10 cc. each at intervals of one month; a year later a third 10 cc. injection is given. These horses do not receive serum or toxoid when wounded. Studies for over nine years in 22,000 horses and mules have shown no deaths from tetanus; one animal developed tetanus but recovered. From 1925 to 1929, previous to the use of toxoid, 50 of 13,600 horses developed tetanus and 30 animals died; these deaths occurred despite the use of preventive tetanus antitoxin.

Experimentally, too, immunization with tetanus toxoid protects against both tetanus toxin and live tetanus spores. This has been shown

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by Ramon and Descombey[5] in the horse, and by Sneath and Kerslake[6] in guinea-pigs. The introduction of live spores did not kill animals to whom sufficient toxoid had been given.

Why Tetanus Toxoid? — Most of us are probably familiar with the advantages of tetanus toxoid over tetanus antitoxin. But, as Firor[7] recently stated, "the American medical profession has been amazingly slow to realize that the prevention of tetanus can be effectively accomplished by active immunization against the disease. The great majority of practitioners wait until a suspicious injury occurs and then give a prophylactic injection of antitoxin. The failure of these doctors to permanently protect their patients from tetanus by the use of toxoid comes either from ignorance of its existence or from misgivings as to its efficacy."

Cooke and his coworkers[8] sum up the advantages inherent in active immunization with tetanus toxoid as follows: (1) the serum antitoxic titer may be raised by toxoid to a level higher than that afforded by the usual prophylactic dose of tetanus antitoxin; (2) the immunity is much more lasting and (3) it can rapidly be re-elevated to a much higher level by a subsequent injection of toxoid at the time of injury, the so-called stimulating dosage; and last, but not least, (4) it avoids the very real danger of serum sickness and serum sensitization. We may add that (5) local reactions from the toxoid are not severe, as a rule, and that (6) general reactions are rare and are easily controlled.

Furthermore, we must remember that, while tetanus itself is a comparatively uncommon disease in civil life, the mortality from tetanus remains high. Spaeth[9] reported twenty-one deaths in sixty-six cases despite the use of antitoxin, sedatives, and a special team of workers in this field. It must be realized that under war conditions and even in civilian life away from large cities, the death rate is much higher as antitoxin is not always readily available. Individuals who are immunized by toxoid need no antitoxin except in very rare instances.

Preparation of Toxoid — Several different toxoids have been or are in use; the formalinized preparation originally prepared by Ramon is still widely advocated; alum-precipitated toxoid is in favor in this country and is prepared by precipitating the formalinized toxoid with potassium alum. Jones and Moss[9] showed in guinea-pigs that two injections of alum-precipiated toxoid produced a higher immunity than did three injections of the ordinary formalinized toxoid. Gold[10] confirmed this in man. The alum precipitated toxoid is better than the plain formalinized because it acts more slowly and therefore stimulates antigenic response over a longer period of time with a greater production of antitoxin.

Technique of Administration — A great deal of work has been carried out not only in the choice of the preparation but also in regard to the number of injections and to the intervals between injections. It is probably the concensus of opinion that two injections of alum precipitated tetanus toxoid injected subcutaneously at intervals of two to three months will protect almost all individuals. The favored dosage is 0.5 cc. each time, although some use double this amount. After the two injections the amount of tetanus antitoxin in the blood serum increases to over 0.10 unit per cc., an amount which is amply protective against tetanus. It has also been demonstrated that the amount of antitoxin in the serum decreases steadily from its peak and if not reinforced it will eventually sink to a level too low for safety. But an extra stimulating injection, given approximately six months or a year later, causes a rapid and tremendous increase in the serum titer; this has lead to the use of this extra injection of toxoid, instead of antitoxin, at the time of injury, in individuals who have previously been immunized by toxoid. After this third injection the immunity persists for a very long interval without further reinforcement; this has been well shown by the absence of tetanus in the French cavalry. Among the workers who have contributed to this subject are Ramon and Zoeller,[11] Lincoln and Greenwald,[12] Sacquépée,[13] Sneath,[14] Sneath and Kerslake,[16] Gold,[10 and 15] Jones and Moss,[9 and 16] Bergey and Etris,[17] Bergey, Brown and Etris,[18] Brown,[19] Rogers[20] and Kestermann and Vogt.[21]

Hall's recent paper[22] on tetanus toxoid immunization in the United States Navy has an excellent summary. Since 1934 Hall has immunized more than 3,400 midshipmen at the

Naval Academy with two doses of alum precipitated toxoid given eight weeks apart; he states that the procedure is ideally fitted for military services. A third dose of toxoid is given at once should injury occur after the primary injections. He points out that serum sickness has disappeared since the use of toxoid. Hall advises re-injection every four years.

Reactions From Tetanus Toxoid — Reactions from tetanus toxoid have, on the whole, been of a minor character. Local reactions are rather frequent and, in a few cases, the local swelling has been fairly marked. But the swelling subsides without suppuration. In Hall's series[22] he had a rather large number of reactions, 50 in 1800 individuals, with 38 very sore arms; there were some instances of fever and malaise and four cases of urticaria and one of anaphylactic shock. On investigation he found that the toxoid had not been sufficiently washed. On changing to another lot of toxoid there were no further reactions.

Gold stated that in over a thousand injections only one systemic reaction occurred and that all local reactions subsided in two or three days.

Systemic reactions have been exceedingly rare when we consider the enormous number of persons who have been or are being immunized. Whittingham,[23] in England, states that 61,042 healthy individuals were given two one cc. injections at intervals of six weeks; local reactions occurred in about one percent of the cases. General reactions, with shock and urticaria, followed the second injections in two persons. In both of these large positive scratch tests were obtained to Witte's peptone, an ingredient in the toxoid used. Parish and Oakley[24] and Cunningham[25] have each reported a case of shock and urticaria, also with positive skin tests to Witte's peptone. Cooke and his coworkers[8] have had one case of severe angio-neurotic edema and urticaria following the second dose. They recommend routine scratch tests with the toxoid before the second injection is given. Gold[15] also reported urticaria in one patient. Fortunately, all of these patients recovered very promptly after the administration of epinephrin. There is no record of any fatal reaction from tetanus toxoid. The presences of allergy is no contraindication to the use of toxoid.

Combined Toxoids And Vaccines — Time will not permit a discussion on combined immunizations, but it may be pointed out that when diphtheria and tetanus toxoids are given together the resultant titers of serum antitoxin have been shown to be enhanced one by the other, as reported by Jones and Moss,[26] Ramon and Zoeller[27] and Von Canon.[28] Otten and Henneman[29] are opposed to this combination.

In a paper just published Bigler and Werner[30] found that in 240 children the use of combined diphtheria-tetanus toxoid was safe, durable, reliable, and relatively free from reactions. They recommend this procedure in all children, allergic as well as normal. Ott[31] was one of the first to use combined diphtheria-tetanus toxoid in children. He gives two immunizing doses of the combined toxoids and then gives a stimulating dose of tetanus toxoid once a year.

Tetanus toxoid combined with typhoid and paratyphoid vaccine is also in use in some places, especially in the Italian army. Grasset and Girdwood[32] and MacLean and Holt[33] report excellent results with this combination.

Author's Series — In an effort to evaluate the risks, if any, in attempting to immunize allergic individuals against tetanus 171 patients were used. All of these had one or more allergic conditions, chiefly bronchial asthma and hay fever; some also were victims of urticaria, atopic dermatitis or allergic rhinitis. These patients were selected at random and their ages varied from 3 to 63. Table I lists the ages and it can be seen that the majority were in the second and third decades, although there were 23 children under 10 and 30 individuals over 40.

TABLE I — TETANUS TOXOID IN ALLERGIC INDIVIDUALS

Age	Number Cases	No. Local Reactions
0 - 9	23	5
10 - 19	43	3
20 - 29	46	6
30 - 39	29	3
40 - 49	19	5
50 - 63	11	1
Total	171	23

Sex: Male 102 Female 69

Total Number Injections 291

Percent Local Reactions 7.9%

Eight patients received combined tetanus-diphtheria toxoids, with one local reaction.

The routine used was as follows: two injections each of 0.5 cc. alum-precipitated tetanus toxoid[34] were given subcutaneously in alternating arms. The interval between injections was approximately eight weeks. All of these patients were receiving one or more other antigens for their allergic conditions, but the tetanus toxoid was given at a separate location.

A total of 291 injections have been given to these 171 patients and the immunization is being carried on in these individuals and in all new cases as far as possible.

There were no systemic reactions. In all cases there was a stinging sensation; 23 patients had local reactions, as shown by inflammation which lasted from one to three days; in three cases the swelling was very severe and in one of these the patient refused a second injection. All but two of these local reactions occurred with the first injection. When a local reaction occurred, the second dose was split (0.25 cc. at eight weeks and another 0.25 cc. at twelve weeks); by this method we avoided further local reactions in all but one case. The age and sex of the patient had no relation to the frequency of the local reactions. Eight patients not previously immunized against diphtheria received two to four injections each of combined diphtheria-tetanus toxoid, with a total of 2.0 cc. One local reaction occurred in this group.

TABLE II — TETANUS TOXOID IN ALLERGIC INDIVIDUALS

Total Number Immunized	171	
		Local Reactions
Previous Serum (Antitoxin)	28	1
Previous Serum Sickness	11	1
Horse Dander Sensitive (Clinical)	23	3
Positive Skin Test Horse Dander	40	5

From Table II it can be seen that in these 171 allergic individuals 28 had a history of previous tetanus or diphtheria antitoxin; eleven of these patients stated that they had had serum sickness after the antitoxin; this ranged from simple urticaria to anaphylactic shock. Interestingly enough, a medical student with hay fever developed tetanus after an injury and almost died after being given tetanus antitoxin. A local reaction occurred in only one of these 28 patients who had a history of previous serum.

It must be emphasized here that in addition to the 28 persons known to have received previous antitoxin an unknown number had previously been immunized against diphtheria. Many of these individuals had probably received diphtheria toxin-antitoxin; despite the fact that this contains a very small amount (0.0001 cc) of horse serum, Gordon and Creswell[35] showed that the highest percentage of serum sickness following therapeutic serum (74%) occurred in those who had had previous toxin-antitoxin.

Another group was most interesting. There were 23 cases of proved clinical allergy to horse dander, most of them asthmatics. Only three local reactions occurred in this series.

In seventeen other individuals there were moderate to strong cutaneous or intracutaneous reactions to horse dander without proof of clinical allergy. In two of these local reactions occurred.

Comment — It is indeed comforting to realize that local reactions occur no more frequently in allergic individuals than in normal persons. It is especially pleasing to know that it is perfectly safe to immunize those who have had previous serum both with and without serum sickness; and that those who are allergic to horse dander can also be injected with tetanus toxoid with impunity. We all realize that it is in these two groups that an injection of ordinary horse serum antitoxin is fraught with great difficulty and great danger. These are the patients who most need and should receive tetanus and diphtheria toxoids.

To further protect our patients we give each of them, after the immunizing injections have been completed, a card to carry with them in a bill-fold or purse (Chart I). The patient is instructed to show this to any physician in case of injury so that he or she should at once receive a third or stimulating dose of tetanus toxoid instead of tetanus antitoxin. It has been amply demonstrated that this extra injection, even when given a year or longer after the first injections, protects against tetanus very promptly and very completely.

A locket can be worn around the neck which states that the wearer has been immunized and needs tetanus toxoid if injured, not tetanus anti-

toxin. This novelty appeals especially to children.

CHART I

TO WHOM IT MAY CONCERN:

This is to certify that ..... is highly allergic and has received two 0.5cc doses of TETANUS TOXOID (Lilly) to prevent tetanus.

In event that (he) (she) sustains an injury for which prophylactic dose of TETANUS ANTITOXIN would ordinarily be given, please inject instead 0.5cc. TETANUS TOXOID.

DO NOT GIVE TETANUS ANTITOXIN.

DATE

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Our findings are therefore in complete agreement with those of Gold[36] who found no trouble in immunizing allergic individuals.

It has recently come to our attention that the use of tetanus antitoxin in some industrial plants in and around Chicago has been almost completely dropped because of the great frequency of serum reactions. In one institution tetanus developed in an injured workman; the physician had not given antitoxin. This is indeed a sad state of affairs. These physicians are not using methods of treatment recognized as necessary, and they are targets for malpractice suits. It must be emphasized that in suspicious injuries tetanus antitoxin must still be used in those not previously immunized. But the situation in industry is a strong reason for routinely immunizing all workers, to prevent tetanus and serum sickness at the same time.

Recently the use of despeciated tetanus antitoxin has been suggested by Coghill and his coworkers.[37] The horse-serum is changed by Takadiastase which alters the specificity by acting on the carbohydrate fraction. Schaeffer and Myers[38] successfully treated a tetanus patient with this despeciated tetanus antitoxin. The man was sensitive to horse serum as shown by skin test and by systemic reaction when desensitization was attempted. He was able to take large doses, even intravenously, of this new despeciated serum.

The use of bovine antitoxin has been recommended by some. Glaser[39] recently reported its use in 38 children with only two mild reactions. Some of these patients were sensitive to horse serum. In the ensuing discussion Tuft advised bovine antitoxin in allergic individuals who are sensitive to horse serum but advised against its use routinely. Tuft pointed out that the dosage of bovine antitoxin is three times that of antitoxin from horse serum.

CONCLUSIONS

1. Tetanus-Diphtheria Toxoid should be given routinely in all children. If already protected against diphtheria, they should be immunized against tetanus.
2. All allergic individuals should receive tetanus or combined toxoid. This is especially indicated in those who have had previous horse serum and in those who are clinically sensitive to horse dander and serum.
3. Immunization of 171 allergic patients has been or is being carried out.
4. Reactions have not been serious. Local reactions occurred in 23 patients, three of these fairly severe. There were no general reactions.
5. Local reactions did not occur more frequently in those who had had previous antitoxin nor in those who are clinically horse-sensitive.
6. It is recommended that immunization be carried out by two injections each of 0.5 cc. tetanus toxoid or 1.0 cc. each of tetanus-diphtheria toxoid. The alum precipitated preparation is preferred, at intervals of eight weeks.
7. Immunity persists for a long time and is rapidly accelerated by an additional (stimulating) dose of toxoid.
8. Immunization should be carried out not only in children and in allergic persons, but in all those especially predisposed to injury.

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Three million dollars a month is being spent on tuberculous soldiers today. Flatly, it costs around $10,000 to induct a man suffering from tuberculosis and $50.00 a month for the rest of his life, plus compensation benefits for his dependents after his death. D. B. Craigin, M.D., Med. Dir., Aetna Life Ins. Co.

Undiagnosed tuberculosis is present in patients admitted to mental institutions in a fairly large percentage. In addition to these, a relatively large percentage of patients develop tuberculosis while in residence, again without their disease being recognized. M. Pollak, et al, Amer. Rev. of Tuber., Mar. 1941.

URINARY INFECTIONS IN CHILDHOOD

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Urological complications attending childhood infections present an interesting study for the pediatrician and the urological surgeon and it is difficult to comprehend why literature of this important subject is so meager. Pediatric urology is not a distinct speciality. On the contrary, it ranks as an important phase of general urology, and more thought and more intelligent study should be given to it. Lamentable is the situation, that as urologists we have too long considered the so-called medical kidney as a thing apart from the scope of our endeavor. It is logical to assume that in order to thoroughly and successfully attack renal disease, one should strive to secure a thorough understanding of the acute and inflammatory kidney diseases so commonly witnessed in childhood.

A complete urological survey is definitely indicated in the majority of cases of urinary infection in infancy and early childhood. These patients from conception to adult life are subject to the same pathological changes seen in later life with but few reservations. Among children, renal anomalies, renal tumors, acute infections, obstructive uropathies and a host of pathologic entities are daily recorded.

It is granted that the ordinary case of pyelitis, scarlatinal nephritis or pneumonic nephritis will terminate favorably if properly managed, however, it is still very important if the disease persists, to have a dependable understanding of any associated urological pathology which may be present.

Urinary Infections — Urinary infection results from bacterial invasion and is accompanied by a great variety of inflammatory changes. In the urine bacteria are regularly present and pus cells generally found. Not infrequently symptoms are wanting or may be extremely severe, localized in the ureogenital system, or referred to other organs or regions. Although it has been adequately demonstrated by urological investigations that urethro-vesicle infection exists without renal involvement, in most instances the predominant lesion is assumed to be in the kidney

unless otherwise designated. It is commonly known that in many instances major uropathy begins in infancy or early adult life, hence the study of urinary infections in the young is worthy of grave consideration. Especially is this true when the disease neither resolves spontaneously nor responds readily to appropriate measures. Acute urinary infection in adult life may often be a recurrence of a low grade persistant process from childhood. Pyelonephritis of one year duration invariably becomes chronic and regardless of a lack of symptoms or clinical findings, it is constantly present to a greater or lesser degree. The so-called pyelitis of pregnancy could reasonably be of this category. All have witnessed instances of young girls dismissed from the hospital after attacks of acute pyelonephritis, who on re-examination months or years later have shown pathogenic bacteria in the urine. Many of the foregoing cases were doubtless examined prior to our present day knowledge of urinary tract pathology. Regardless of our present knowledge concerning urological conditions in childhood, these observations can be repeatedly confirmed. The recognition and adequate treatment of accessory causes of persistent urinary infection in childhood is essential for proper management of these cases.

Modern urological advances and refinements in the diagnosis of advanced or chronic structural changes in pediatric cases have clearly demonstrated that with but few exceptions, children may fall heir to every urological disease known to exist in adults. Because the important problem of urologic disease in infants and children is seemingly without end, and modern knowledge concerning it so disseminate, what may appear as undue emphasis on detail of discussion is here given for clarity and to impress firmly on our minds that not a few cases diagnosed as chronic cystitis or chronic pyelonephritis or persistent pyuria are in reality cases of renal anomalies, renal tumor, renal tuberculosis or calculus disease. As a rule, correct urologic diagnosis in chronic urinary infection is not attended by major difficulties, although the therapeutic phase may be extensive. Usually acute urinary infections properly recognized are self-limited and disappear clinically in from two to four weeks, irrespective of treatment.

General Consideration of Acute Urinary Infection in Children: Non-Tuberculous — In reviewing the literature, and from our own personal experience, we note that in most instances, acute urinary infections in children are commonly classified as pyelitis. Rayer in 1837 coined the term, and at that time differentiated quite clearly between infection of the renal pelvis and of the parenchyma. He further stressed a fact which is only too frequently forgotten, that inflammation of the pelvis ultimately involves the parenchyma, and vice versa. If the literature is a criterion, comparatively slight attention was accorded Rayer's publications, until forty years later (1876) when Huttenbrenner emphasized their importance and gave an adequate clinical description of the disease. Echerich, two decades later (1895), reviewed the available data on pyelitis and pyelonephritis and stressed the high incidence of urinary infection in infants and children. The term colicystitis was used at this time, obviously considering the lesion a vesical one, possibly due to the predominance of the colon bacilli. While the foregoing citations have in a measure been substantiated by urological studies, yet it is generally conceded that infection of the renal parenchyma is the dominant lesion. Helmholz in recent years has confirmed this through extensive experimental research, as have also the pathological investigations and instrumental explorations of modern urologists.

Incidence — Acute urinary infection in childhood is most prevalent during the early years of life and due to its habit of complicating other disease processes, particularly in the naso-pharyngeal or intestinal tract, it could reasonably be considered the most frequent bacterial disease in children under two years of age. It is a well-known fact among pediatricians that most mild urinary infections go unrecognized, and only the most virulent attract clinical attention. Fromm, in a series of two hundred and twenty-five cases, reported urinary infection in 4.4 per cent under the age of two years. In no succeeding years of childhood is acute urinary disease so prevalent, and only after the fourth decade is the incidence approached.

Etiology — The etiology of urinary disease in childhood is indeed a broad and important field,

and as we know all to well, has an extensive literature. Although acute urinary diseases are directly produced by some bacterial invasion, there is a multitude of predisposing factors and accessory items of interest, namely; age, sex, heredity, seasonal causes, structural ureteral or renal changes, toxic trauma, etc., all of which have a definite bearing on diagnosis and management.

Mechanical Processes: An Important Factor in Etiology — Urinary stasis plus obstruction seems to be the most potent predisposing factor in the production and promotion of urinary infection. An unimpeded flow of urine greatly inhibits the possibility of bacterial lodgement and hence inhibits the development of urinary infection of sufficient severity to attract clinical recognition. As a corollary, the maintenance of a free renal output is the most important single factor in the management of acute or chronic urinary infection. As Von Lichtenburg so aptly expressed it, "The initial effect of urinary obstruction is urinary stasis or urinary constipation." The pathologic processes active in the presence of stasis produce various degrees of renal congestion, hyperemia or engorgement. The congestion may result from a small or scarcely demonstrable residuum. The endothelial cells of the renal capillary bed exhibit marked phagocytic activity. However, the necessary function is perceptibly lessened by urinary back pressure, and furthermore the resistance of the renal cells is diminished. With an organ so debilitated, colon bacilli or other invading organisms rush in for the kill and usually become established. It appears to be axiomatic, therefore, that urinary stasis predisposed to infection, always perpetuates an established one, and there is slight hope for cure unless urostasis is eliminated.

Stasis may result from various urogenital obstructions, neuromuscular inertia, congenital malformations, embryologic rests or renal mobility. Each should be considered in the routine of urological analysis.

Toxic Trauma — Bacterial invasion through the medium of toxemia and trauma renders the renal epithelium more susceptible to devitalization and hence a fertile area for bacterial development.

Toxic injury to the renal structure demands greater consideration than traumatic injury, not only because of its higher incidence, but because of the possibility of bilaterality. The toxemia may be local or general as often noted in furunculous dermatosis or a part of a general septicemia. The resistance of the renal cells is overcome by the toxins elaborated by the invading organisms and severe renal infection ensues. General or systemic toxemia commonly exists in acute infections, such as, typhoid, scarlet fever, diphtheria, endocarditis, pneumonia, gastro-enteritis, measles, and chemical poisoning. The pathology depends on the severity of the invasion; simple congestion when mild, and cloudy swelling when the process is severe. The clinical manifestations of the toxic effects upon the sound kidney are often prominent in advanced unilateral disease, especially pyonephrosis. Toxic injury of the otherwise healthy mate frequently causes the appearance of a heavy cloud of albumin and showers of casts. Following elimination of the toxic process, as by surgical removal, the opposite kidney generally returns to normal.

Bacteriology — The subject of bacteriology in urinary infection, while extremely important, is too often neglected by urologists. But bacteriology has a specific place in urology if treatment is to be successful, particularly as concerns the use of our newer drugs. The medical profession in general, through intensive study, has made tremendous advances in bacteriological identification, classification and cultural characterization. What was formerly a meager understanding is today a definite science and its correct application to specific disease is noteworthy. For brevity, I believe classification based on the gram stain characterization of organisms and for the diagnosis of the ordinary bacterial infection is entirely satisfactory for the average medical man.

Of the gram negative bacteria B. coli communis is most often found. In the adult it is said to cause about seventy-five per cent of urinary infections. Other gram negative bacilli which cannot be distinguished from B. coli by gram stain are Aerobacter aerogenes and Pseudomonas and Proteus genera. The gonococcus,

while being gram negative, is fortunately not very prevalent in children. The question of gonococcal infection of the kidney has been one of special interest to the urologist. A number of case reports are to be found in the literature, but considerable doubt seems to exist as to the correctness of the diagnosis in many instances. The greater significance of gonococcal infection in young children is in infection of the lower urinary tract and particularly significant in gonorrheal vaginitis.

Of the gram positive bacteria, staphylococcus is of the highest incidence, with streptococcus next. In contrast studies by various workers in an attempt to find the relative incidence of specific bacteria in renal and vesical infection, it has been quite definitely established that B. coli and staphylococci are more generally active in vesical infection; whereas, in renal disease the B. coli shows a lower incidence and there is a greatly increased incidence of staphylococcus, proteus, B. pyocyaneous and bacteria of the paratyphoid group.

It is generally understood and confirmed by personal experience, that among the various bacteria causing urinary infection in childhood, the members of the staphylococcus group are possibly as prevalent as B. coli. The relations of the staphylococcal invasion to the ultimate bacteriological picture is as yet an unsolved problem. As has been previously stated, staphylococci are predominant in vesical infection. In renal complications the staphylococcus, being usually hematogenous, is conceded by many to initiate the destructive renal process by lowering resistance and preparing the way for secondary invasion.

Assaults on the renal integrity by the streptococci have been frequently cited. However, in actual practice they are encountered infinitely less than B. coli or staphylococci. In most statistical reports the incidence is below fifteen per cent. These lesions are characteristically cortical and chiefly glomerular and are diffusely scattered microscopic or macroscopic abscess formations. These metastatic lesions are infrequently found in interstitial tissue. Many other gram positive organisms are noted, but because of their comparative rarity, need not be discussed here.

Pathways of Renal Infection — In a brief and casual consideration of the important phase of pediatric urology, all interested in urological research are thoroughly aware of the controversy still existing with regard to the pathways of renal infection. It is usually very difficult to determine the exact route of bacterial invasion of the kidney. However, in many cases it is clearly suggested by a careful analysis of the clinical history together with the symptomatology and urological findings. One should ever be on the alert in treating resistant cases of pyuria in childhood and insist on a complete cystoscopic and pyelographic study. Lower urinary tract pathology or other accessory conditions which would otherwise pass unnoticed can thereby be definitely discovered or ruled out.

The path of renal disease in infancy and early childhood is in most instances hematogenous or blood-born, secondary to the acute exanthemata, and of varying degrees of severity. The usual pathologic renal picture is one of nephritis, acute glomerular, tubular or hemorrhagic.

Nephritis of one type or another ranks high among the causes of death. Age is not an important factor and although infants are less often attacked than older children, congenital or fetal nephritis has been reported. Between ten and twenty years of age the incidence seem rather high.

Pathology of the Kidneys in the Acute Infectious Diseases of Childhood — The simple degenerative change called cloudy swelling is the most common pathologic change in the kidneys during the course of acute infectious diseases in children. It is caused directly by the circulating toxins. The microscopic picture of the swollen, granular cytoplasm of the epithelial cells of the renal tubules is too well known to deserve more than passing mention. Clinically, albumin and casts are found in the urine, but the process usually resolves completely when the infection subsides, leaving no trace of altered structure or function.

If the infection is more severe, cloudy swelling progresses to hydropic degeneration, and even to fatty degeneration of the tubular epithelium. Even such severe damage to the renal parenchyma usually resolves to normal, when the acute infection subsides. This is probably dif-

ficult to understand until it is remembered that the epithelium of the renal tubules is capable of extensive regeneration, even when badly damaged. This is true in adults as well as in children.

This is not so, however, with the glomeruli of the kidneys. When the latter are damaged we are justified in speaking of a "nephritis." In the vast majority of cases of acute infections the renal glomeruli fortunately escape injury, often in spite of severe toxemia. When such injury does develop, it does so, not as a direct result of the bacteria themselves, nor as a direct result of their toxins, but glomerular nephritis probably develops because the glomeruli become *sensitized* to the circulating toxin.

Large quantities of bacterial toxins filter through glomerular capillaries and Bowman's capsule without injurying these structures to a significant degree. In some individuals they become the site of a reactive process; and acute, subacute or chronic nephritis supervenes. No bacteria are ever found in these lesions, yet the epithelium of Bowman's capsule or the endothelium of the glomerular capillaries (or both) become much swollen and may proliferate. In recent years, since the problem of hyperergic and allergic inflammation has been studied, it has become clear that in such individuals these vulnerable structures, constantly bombarded by toxin, become sensitized to it, finally rebel and react strongly and wildly, often to their detriment.

If the reaction is chiefly exudative, then an acute nephritis supervenes. The hyperergic reaction may take the form of a marked increase in permeability of the capillaries, such as is seen in urticaria, etc., and red blood cells may actually exude through the capillary walls, resulting in hematuria. A marked swelling of the epithelium of Bowman's capsule or of the glomerular endothelium may occur, increasing from a normal thickness of less than half a micron to 8 to 10 (or more) microns, presenting a semi-permeable membrane 15 to 20 times thicker than normal. This naturally decreases filtration, resulting in oliguria. Often the two mechanisms are combined. These acute hyperergic processes usually resolve to normal in the great majority of cases, a fact often observed clinically.

If the hyperergic reaction persists, instead of a cellular proliferation, subacute or chronic nephritis supervenes. These conditions, unfortunately, often result in permanent damage to the kidneys. Proliferation of the epithelial cells of Bowman's capsule or of the capillary endothelial cells results in the formation of crescent-shaped masses of cells which fill and block Bowman's space, interfering mechanically with renal function. Filtration pressure must therefore increase, and hypertension may develop. Such cell masses do not absorb or resolve, and usually interfere permanently with the function of those glomeruli effected. As the cell masses become organized by fibrous scar tissue, the glomeruli become completely functionless. Furthermore, those individuals whose glomeruli become sensitized, may in later life have a flare-up with recurrent attacks of subacute nephritis whenever a bacterial toxin from some source filters through them. The described mechanisms probably explain the progressive, recurrent picture of chronic glomerular nephritis which follows acute infectious diseases.

If acute infectious diseases are complicated by suppurative foci, such as post-scarlatinal mastoiditis or post-pneumonic suppurative arthritis, then pyemic emboli may land in the kidneys and produce multiple cortical abscesses. Such abscesses may rupture the capsule and produce a peri-nephritic abscess, which would require surgical drainage.

Another pathologic change that is being observed recently with alarming frequency is the precipitation of sulfanilamide crystals in the renal tubules, leading to the formation of sulfanilamise stones in the pelvis. This can often be obviated by adequate therapeutic management.

Syphilitic nephritis of nurslings, renal affections in congenital lues, the kidney complications following nasal, oral and mastoid surgery offer interesting and important subjects for presentation. Although at the onset, all, from the standpoint of renal pathology, present nephritic changes, the etiology and symptomatology are vastly different and each may require quite different management.

In the foregoing, no attempt has been made to discuss specific disease entities. It is to be hoped that the problems briefly presented will consti-

tute incentives for more intelligent and thoughtful evaluation of urinary symptoms in infants and children.

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The authors wish to express their appreciation to Dr. Perry J. Melnick for his kind assistance in the preparation of this article.

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CHOKING ON FOOD CAN BE SERIOUS AND SOMETIMES FATAL

Choking on food can be serious and sometimes fatal, *Hygeia, The Health Magazine* says in answer to an inquiry. The greatest danger is that of suffocation from a large mass that may stick in the region of the vocal cords and cut off the air supply. The choking person should be placed face down and given as much breathing space as possible. Constricting collars or band about the neck should be removed and an effort made to get the patient to the hospital as quickly as possible. It is of little value for the ordinary bystander to attempt extraction of any mass with the fingers or simple instruments that may be at hand. No attempt should be made to force the person to swallow water or other liquids. If the patient survives long enough to be taken where expert attention is available, successful removal of the foreign material is usually possible, *Hygeia* declares.

THE NIGHT SECRETION OF FREE HYDROCHLORIC ACID IN THE STOMACH

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The secretion of free hydrochloric acid plays an important part in the history of peptic ulcer. Much work has been done on this secretion during the day and some on the secretion of the fasting stomach, but comparatively little on the acid gastric juice during the night. This work was undertaken primarily to determine the amount of free hydrochloric acid secreted in cases of peptic ulcer after nine o'clock in the evening.

Most of the observations made in the literature have been on normal individuals. Carlson[1], in his early work on the secretion of gastric juice in man, stated that the gastric glands in the normal person were never completely quiescent, and found that when the secretion rate was low, it was poor in hydrochloric acid. Rehfus and Hawk[2] called attention to the "interdigestive phase" or the "nocturnal interdigestive phase" which resulted in the so-called twelve hour retention. They found that the stomach was physiologically active during this period, with an average free acidity among men of 18.5 in terms of 0.1 N NaOH. The free HC1 values in the fasting contents of the stomach varied between 0 and 22, averaging 8.5, and the total acidity values between 8 and 40, averaging 23.4 in the report of Bell and McAdams[3]. Wright[4] recognized the gastric secretion after a night's fast and determined the average amount as 30 c.c.; the free HCl varied from 40 to 50 in terms of 0.1 N NaOH. The total acidity varied from 43 to 60.

It is interesting to note that the gastric secretion following hypnosis has been compared to that which occurs during sleep. Luckhardt and Johnston[5] carried out some experiments on hypnotized individuals and concluded that there was a rise in the gastric acidity which they thought was due to the temporary removal of central inhibition from the gastric secretory

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mechanism. Later Johnston and Washein[6] compared this work to the secretion occurring in sleep and concluded that the gastric secretion curve obtained with the empty stomach in sleep was almost identical with that obtained with the empty stomach in hypnosis. An interesting conclusion made by these authors was that the rise in acidity was generally highest when the intensity of sleep was greatest.

Emery[7] and many others have recognized the importance of night secretion in the management of peptic ulcer complicated by obstruction. Palmer[8] states: "The excessive continued night secretion appears to play an equally important role in the failure of ulcers to heal." In a series of 169 patients Winkelstein[9] found in the nocturnal secretion of normal individuals there was little or no free HC1 while patients with all types of peptic ulcer secreted a high titre of free HC1.

This study was conducted on 14 adult male patients with peptic ulcers, including duodenal, gastric and jejunal lesions. The ages varied from 23 to 69, averaging 36. The diagnosis was based on an accepted ulcer story and was confirmed by x-ray study or gastroscopy. Since it is generally accepted that the excessive night secretion of free HCl is one of the major problems in the management of peptic ulcer complicated by obstruction, no obstructive cases were studied in this series. All cases had been on ulcer management an appreciable length of time and were getting three hospital meals daily. The stomach was emptied at 9 P.M. with a stomach tube, and again at 12 midnight and 3 A.M. The secretion was titrated with 0.1 N NaOH for free HCl and total acidity immediately following the aspirations.

Ewald test meals were given in the routine manner and revealed a free HCl from 15 to 49, with an average of 27, and a total acidity varying from 30 to 48 with an average of 43 when titrated as before.

In order to evaluate the findings in the peptic ulcer cases, it seemed advisable to study the night secretion of adult males who had no history of gastro-intestinal or other complaints. Five such individuals varying in age from 21 to 27 were studied in the same manner as the ulcer cases. The aspirations were checked in every case and the variations were not of practical significance. To make the comparisons more easily understood, only the averages will be used in this report.

Seven duodenal ulcer cases were studied. The free HCl at 9 P.M. varied from 0 to 68 with an average of 26 when titrated with 0.1 N NaOH. At midnight the acidity varied from 0 to 70, averaging 45. At 3 A.M. the variation was from 18 to 60 with an average of 35. Aspiration of the normal men yielded the following values: 9 P.M., variation of free HCl from 0 to 27, averaging 10; 12 midnight acidity 0 to 15, averaging 10; 3 A.M., varied from 0 to 44, with an average of 23. Chart 1 summarizes these results and compares them with the gastric acidity in the duodenal ulcer cases and that in the Ewald meals. The average acidity of the Ewald meals was 27. It will be noted that the hydrochloric acid in the duodenal ulcer cases was definitely higher than in the other two. The average quantity aspirated in the duodenal ulcer cases was 207 c.c. at 9 P.M.; 33 c.c. at 12 midnight, and 41 c.c. at 3 A.M. In the normal cases the average quantities were 152 c.c., 7 c.c. and 19 c.c. respectively. Again a definite increase is noted in the cases of duodenal ulcer.

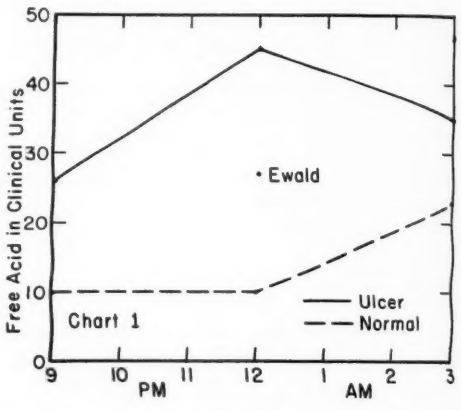

Chart 1. ———— represents the free HCl in normal cases. ————, free HC1 in ulcer cases. The dot (.) indicates the average acidity of Ewald meals.

Five gastric ulcer cases were aspirated and the free hydrochloric acid titrated as before with

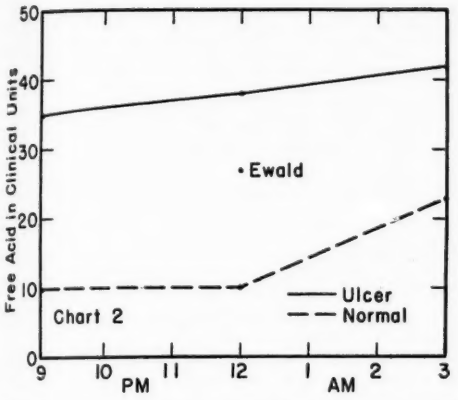

Chart 2. ———— represents the free HCl in gastric ulcer cases; — — — — the free HCl in normal individuals, and the dot (.) the average free HCl of Ewald meals.

the following results: 9 P.M., varied from 15 to 48, averaging 35; 12 midnight, 17 to 87, averaging 38; and 3 A.M. variation 23 to 58, with an average of 42. Chart 2 summarizes these results and compares them with the normal results. The average quantity aspirated in these cases varied from 96 c.c. at 9 P.M. to 16 c.c. and 15 c.c. at 12 midnight and at 3 A.M. respectively.

Two cases of gastrojejunal ulcer were studied. The gastric acidity at 9 P.M. was 0 and 36; at 12 midnight 44 and 60, and at 3 A.M. 0 and 24. These titrations are summarized and compared in Chart 3. The quantity aspirated in these cases at 9 P.M., 12 midnight, and 3 A.M. was 22 c.c., 82 c.c. and 21 c.c.

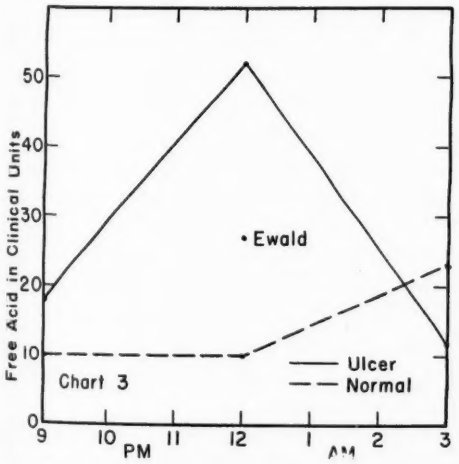

Chart 3. ———— represents the free HCl in gastrojejunal cases; — — — — average free HCl in normal cases, and the dot (.) average free HCl in Ewald meals.

A composite picture of all the ulcer cases studied in this series reveals an average free HCl of 28, 42 and 39, with a total acidity of 51, 57 and 49 at 9 P.M., 12 P.M. and 3 A.M. The average quantity aspirated was 163 c.c., 43 c.c. and 27 c.c. at the usual hours (Chart 4). The total acidity averaged 23 more than the free HCL in the gastric ulcer cases, 21 more in the duodenal ulcers and 15 more in the gastrojejunal cases with a general difference of 17.

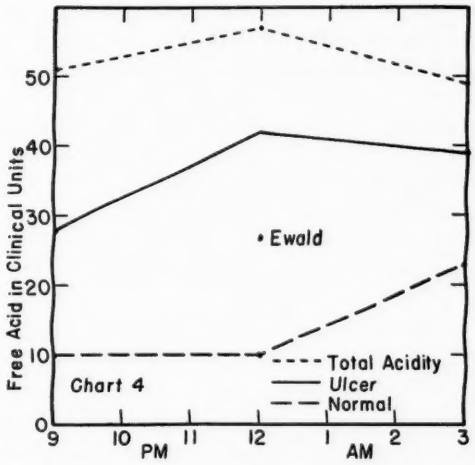

Chart 4. - - - - - - - represents the average total acidity of all cases; ———— average free HCl of all ulcer cases; — — — —, average free HCl of normal cases, and the dot (.) the average free HCl of Ewald meals.

Observation of acidity in the normal cases reveals a very definite rise at 3 A.M. which may corroborate the finding of Johnston and Washein.

It will be noted in the ulcer cases that free HCl was higher than in the normal cases during the night except in the gastrojejunal ulcers where there was an abrupt fall at 3 A.M. For many years there has been evidence that the gastric acidity plays an important part in the non-healing of peptic ulcer. It seems reasonable to believe on the basis of the findings in this series of cases that there is sufficient night secretion of acid in all cases to hinder complete healing of an ulcer. Certainly the free HCl is one of the factors that is amenable to treat-

ment. In my experience there have been better results and fewer recurrences of ulcers in the cases where the gastric acid was managed during the night, and recurrence is probably the greatest problem that confronts us in the effort to work out a more successful treatment of peptic ulcer.

The night secretion of acid gastric juice was studied in 14 cases of peptic ulcer, including duodenal, gastric and gastrojejunal lesions. The average acid secretion at 9 P.M. was 26 when titrated with 0.1 N NaOH, in the duodenal ulcer cases, 35 in the gastric, and 18 in the gastrojejunal. The average acidity values at 12 midnight were as follows: 45 in the duodenal cases, 38 in the gastric and 52 in the gastrojejunal cases. At 3 A.M. the values were 35, 42 and 12 in the duodenal, gastric and gastrojejunal lesions.

The secretion of the normal male adults at the same hours had an average acidity of 10, 15 and 23.

The free HCl was higher in the ulcer group during the night than in the normal group except at 3 A.M. in the gastrojejunal cases.

CONCLUSIONS

1. A summary of the total acidity and amount of secretion is given.

2. There was sufficient secretion of acid in the ulcer cases to hinder complete healing, and management of the acidity during the night reduced the number of recurrences and resulted in a more satisfactory treatment.

The author wishes to express his appreciation to Drs. Volini, O'Brien and Plice in whose wards this work was done.

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COMMENTS ON EARLY DIAGNOSIS AND TREATMENT OF ANTERIOR POLIOMYELITIS

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In the past several years, due to the work of the National Foundation for Infantile Paralysis and the increased activity of the State Board of Health, we have had our desks piled high with literature on this subject. A review of the articles written in the various medical journals, both in this country and abroad, shows that the members of the medical profession are not satisfied with their knowledge of the disease.

While reading an article on anterior poliomyelitis in a southern medical journal not long ago, I was impressed by ten points that the author presented for discussion. They were these:

1. "We are not sure that what we call poliomyelitis is one disease or a group of two or more diseases.

2. We do not know whether it is an ancient or a comparatively new disease.

3. We do not understand the nature of the causative factors.

4. Our knowledge of the pathogenesis is incomplete and indefinite.

5. The diagnosis of the disease as it is designated and reported is often uncertain and frequently erroneous.

6. Our knowledge of the geographical distribution in the United States and other countries, even in recent years, is incomplete.

7. We do not know the main source or sources of the disease, nor with certainty, whether the disease is infectious.

8. We do not know definitely, the usual mode of spread, the portal or portals of entry into the

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human body nor whether it is directly or indirectly communicable from one person to another.

9. Various methods proposed for scientific treatment are of uncertain value, and

10. Many of the measures proposed and frequently adopted for prevention or control appear unreasonable, unwarranted, futile and in some instances, dangerous."

All of this is very true. It reminds me of a symposium on the common cold that I heard several years ago. It was given by some of the outstanding men of the State and when they finished telling what couldn't be done and how futile the treatment was, the general impression was that if you or your child was unfortunate enough to acquire a cold it was just too bad.

I don't believe that these men meant to sound quite that pessimistic, and certainly the outlook on poliomyelitis is not that gloomy. We have made definite progress in the past few years and have every reason to believe that the future of the treatment and control of poliomyelitis is much brighter than that indicated by the article.

Due to the increased activity of the experimental laboratories sponsored by the National Foundation for Infantile Paralysis a great deal has already been accomplished. New fields of experimentation have recently been opened by the discovery of a new experimental animal, the cotton rat. This animal is easily obtained, very cheap and more adaptable than the former medium. Before this discovery the only experimental animal we had was the monkey which is hard to get and expensive. This broadens the field considerably and should lead to some interesting conclusions in the near future.

I also feel that we have improved immeasurably in our treatment and that we are preventing paralysis in many cases by establishing special nursing and splinting technique and by encouraging early diagnosis.

In my personal experience with anterior poliomyelitis I have been impressed with the fact that no two cases are alike, that the early diagnosis is difficult and that the treatment is symptomatic.

In our community we have gone through one or two mild epidemics of meningitis in the various forms and have had sporadic cases of encephalitis. In looking back over these epidemics and following up some of the cases that recovered, there is no doubt in my mind that some cases of poliomyelitis were diagnosed as other forms of meningeal irritation and were treated as such. With a little more care and a little better knowledge these children could have had the proper treatment and paralysis might have been prevented.

While it is true that we have little to go on and the laboratory findings are not conclusive, there are a few items that we should keep in mind. One — that poliomyelitis seems to have a decided preference for the late summer and early fall, i.e. we find that epidemics occur between July and October. Two — that the age group is rather definite, between two and twelve with the greatest incidence between eight and twelve. I do not mean to say that older children or even adults do not have the disease or that younger children are immune, but for the purpose of early diagnosis these are two important facts to keep in mind. If you are called to see a sick child in this age group during this season, whether there is a nervous disturbance or not, if the illness does not fit in with the usual childhood ailments it is well to suspect infantile paralysis until it is proven to be something else.

The ordinary course of infantile paralysis consists of a perparalytic stage with fever and gradual increase of symptoms related to the central nervous system. Paralysis occurs between the third and fourth day and may become progressively worse over a period of twenty-four to forty-eight hours.

A second type is that in which there is an initial period of illness without specific neurologic symptoms, lasting from one to three days and followed by a period of apparent well being lasting from one to four days. Then there occurs a second rise in temperature and the disease progresses in the ordinary manner. Probably if a more painstaking history were secured and a more thorough examination made this type of case would have been kept in bed and a possible paralysis prevented.

The portal of entry is not positively known but from the vast amount of research work done

in recent years we are reasonably sure that it is along the course of the unmedulated nerve filaments which are found in the nasal passages and along the intestinal track.

The peculiar onset of the disease and the history of many cases substantiates the theory that there is probably an inflammatory condition in the upper respiratory track or the intestinal track or in both, sometime prior to the infection by the virus of anterior poliomyelitis.

In the history of patients afflicted with poliomyelitis we are impressed with the fact that many of the children have been in the habit of swimming in, or having otherwise been in contact with, impure water. This would seem to imply that the intestinal track is more important in this disease than was formerly supposed.

The isolation and the quarantine after the diagnosis is made is a problem that will only be solved when we discover the actual cause of the disease and the portal of entry into the body.

Until such time as the child shows early symptoms of respiratory difficulty I think that it is better to treat these children in the home, as any unnecessary movement is bad for the child. He should be kept strictly in bed and encouraged to lie as quietly as possible. With proper instruction the isolation can be carried out in the home as well as in the hospital. The cost of isolation in the hospital under the present state requirements is almost prohibitive to the average family. Early splinting of muscle groups should be done as soon as there is any evidence of pain or tremor in any group of muscles. This can be done according to the instructions which you all have on your desks sent out by the State Board of Health and the National Foundation for Infantile paralysis. Temporary splints can be applied until such time as you feel the necessity for permanent splints. These may be obtained by sending the measurements by letter or telegram to the National Foundation for Infantile Paralysis in New York City. They will be shipped at once without cost. In splinting the comfort of the patient is the first consideration.

While there has been some question as to the advisability of using convalescent serum I think that it should be given, especially if the diagnosis is made early in the course of the disease. In my own experience I have found that if the serum is given early, before paralysis develops, the prognosis is much better. While some of the cases thus treated did develop paralysis it cleared up within two weeks and the children made complete recoveries. On the other hand I have had several cases in which the serum seemed to have no effect, but in each of these cases the serum had been given after the paralytic stage of the disease.

The serum should be given with a basic dose of 60 cc. and an additional 1 cc. for every pound of body weight. If possible it should be given intravenously with the addition of normal salt solution but it may be given intramuscularly. Convalescent serum is obtainable through your local health officer or direct from the State Board of Health at Springfield.

The respirator has proven a valuable adjunct to our treatment and should be used at the first indication of difficult breathing. This is manifested by restlessness, a change in speech, and respiration. If this occurs the child should be taken to the nearest hospital as it requires someone with experience to care for a patient in a respirator. The respirator can be obtained by contacting the State Board of Health. They have an arrangement with the State Police for immediate transportation.

During several epidemics in the past years, especially the one in Canada, different forms of chemotherapy were tried out, particularly the sulfanilamide group, but nothing of value has been proved to date.

There was no appreciable difference between the control group and the experimental group. Other forms of medication have been tried but so far there is no specific drug for the disease.

With the use of the new experimental animal and the money provided for the various research laboratories, with the educational program that has been instituted in every State in the Union, with consultants in each district — I feel that there is much to encourage us, both in the early diagnosis and the treatment of anterior poliomyelitis.

DISCUSSION

Dr. A. Levinson, Chicago: Dr. Fletcher's paper touched on so many points that it is hard to discuss

them all. I therefore believe it best to limit my remarks to the diagnosis of the disease.

The reason that the diagnosis of acute anterior poliomyelitis is so difficult is because the disease goes through three different stages and in each stage one has to differentiate it from various other diseases. The systemic stage in which all the child manifests is fever, mild sore throat and some respiratory or gastro-intestinal symptoms has to be differentiated mainly from acute respiratory infections, particularly tonsillitis. It is pretty hard to make a diagnosis at this stage because the condition may simulate the onset of many other diseases.

During the preparalytic stage the most important symptoms are those referable to the nervous system. At this time the child is tender all over, has the "spine sign," frequently has a head-drop and often has a stiff neck, positive Brudzinsky, Babinski and Kernig signs. At this stage the disease must be differentiated from meningitis in all forms, particularly the tuberculous and the acute benign lymphocytic types. It must also be differentiated from encephalitis although the child in this stage is usually alert. We must also differentiate it from meningism, the acute meningeal symptom complex secondary to some other infection but without actual meningitis.

In the early paralytic stage, the child has loss of reflexes and paresis, but it is still hard to differentiate it from conditions such as neuritis or neuropathies. We may even have to consider a cord tumor. Sometimes one cannot make a diagnosis until the child is actually paralyzed or even until there is some atrophy of the muscles.

I should like to say a word about the cerebrospinal fluid in acute anterior poliomyelitis. That has always been a sore spot. Some think spinal puncture is worthless as a diagnostic measure in acute anterior poliomyelitis and others believe that you cannot make a diagnosis without it. The trouble lies in a lack of understanding of the changes in the cerebrospinal fluid in the various stages of the disease. If we keep in mind the fact that cerebrospinal fluid changes are due to changes in the meninges, we will realize that the cerebrospinal fluid varies with the stage of the disease. Thus, in the early systemic stage there may not be any changes in the fluid although the child is harboring a poliomyelitis, simply because there is no meningeal irritation. In the preparalytic stage the changes are usually definite: there is an increase in pressure and in amount of fluid; the cells are usually increased but you cannot lay down a rule as to the actual number of cells in the fluid. It is possible to get a cell count anywhere between 10 and 1000 per cu. mm. I had an experience about a year ago which illustrates this point. An excellent pediatrician saw a child with meningeal irritation. He did a spinal puncture and the fluid showed close to a thousand cells per cubic millimeter. It was because of this that he made a diagnosis of meningitis. It was not until three days afterwards, when the child had paralysis, that the diagnosis of acute anterior poliomyelitis was made. In that case the fluid was misleading.

The type of cell in the fluid at the preparalytic may also vary. Lymphocytes are the rule but polymorphonuclear leukocytes may predominate the first day and then change to lymphocytes.

The cerebrospinal fluid sugar is normal. The protein is increased, the Pandy being about one plus. Early in the paralytic stage the cerebrospinal fluid is the same as in the preparalytic stage and then gradually returns to normal.

One can easily see that the cerebrospinal fluid in acute anterior poliomyelitis is not pathognomonic, but on the other hand it is helpful in the direct and the differential diagnosis if it is properly interpreted. As in any other disease, acute anterior poliomyelitis must be diagnosed by a combination of the clinical and laboratory picture.

Dr. Arthur J. Fletcher, Danville (*in closing*): There is just one thing I want to say about the spinal fluid. If you do a spinal puncture and get some spinal fluid and do not depend on that to make your diagnosis of infantile paralysis, that is fine. If you think your spinal fluid is going to make the diagnosis for you, you are lost. I always want a spinal puncture in a case in which I suspect infantile paralysis in order to prove to myself that it is not something else.

DESCRIBES METHOD OF TREATING HEAD INJURIES AT PEARL HARBOR

Honolulu Surgeon Predicts Mortality Rate Of Brain Wounds In This War Will Be Far Below That of the Last One

Under the heading, "War Injuries to the Head," Ralph B. Cloward, M.D., Honolulu, discusses in *The Journal of the American Medical Association* for January 24 the procedures used in treating penetrating wounds of the head among the victims of the bombing of Hawaii on December 7.

Although much of the article concerns itself with technics of interest only to the profession, Dr. Cloward makes one statement that is not only reassuring to the public generally but one that also reveals the great progress that has been made by medicine in recent years.

He points out that "the mortality of brain wounds in the early part of the first world war was over 60 per cent. Dr. Harvey Cushing lowered this figure to 28 per cent by improving the operative technic. The mortality rate of the second world war should be far below this figure. . . ."

He explains that nearly all of the wounds

were compound depressed fractures of the skull produced by fragments of shrapnel which varied in size from thin flat pieces less than 1 cm. across to large, irregular, heavy chunks of steel 3.5 to 4 cm. wide and 0.5 to 1 cm. in thickness. There were no round smooth bullets found in the group of patients treated.

"The preliminary treatment, prior to operation, is extremely important," Dr. Cloward says. "When the wounded person is first seen at the receiving station the hair about the wound in the head is clipped widely with the hair clippers. The edges of the lacerated wounds are cleansed with soap and water. Any large bleeding vessels in the lacerated scalp are stopped with a hemostat (an apparatus for checking hemorrhage), local pressure or a piece of rubber tubing about the head. A temporary dressing is then applied after the wound has been filled with powder of one of the sulfonamide drugs. . . .

"Because of the large number of cases treated, it was necessary in many instances to delay (operation) as long as twenty-four to thirty-six hours after the injury. No infection was encountered in any of these cases in which the preliminary treatment described of cleansing the wound and applying the sulfonamide powder was employed."

He says that some interesting observations were made on the physiology of this type of wound of the head. Few of the patients with penetrating wounds of the brain were brought to the receiving station in an unconscious state. The majority of them had not been unconscious but were able to recall everything that had transpired from the time they were hit until they arrived at the hospital.

"This was a most surprising fact to the doctors who saw these cases," Dr. Cloward observes. "Patients with large gaping wounds in the frontal areas with considerable quantities of cerebral tissue oozing from the wounds were found to be conscious, cooperative, rational and able to give their identification. Most of the patients were in a state of mild shock with lowered blood pressure and pulse rates from 90 to 110. Aside from this the normal physiologic functions did not appear to be altered materially. These findings applied only to the penetrating wounds of the head. Patients whose lesions had been produced by a large object striking the head, or vice versa, carrying away large sections of brain and skull or producing extensive depressions, were obviously deeply unconscious. . . . All patients admitted in this condition died within a few minutes to twelve hours after admission to the hospital."

He says that it is his impression that the reason the patients did not lose consciousness from their injury "was the fact that the force applied to the head was concentrated in such a small area compared to the entire area of the skull that generalized acceleration of the brain was not produced. The speed with which the objects were traveling was so great that the head was struck, perforated and penetrated before the brain as a whole had time to be set into motion. . . ."

Among the important points made by Dr. Cloward in concluding his paper is that in the treatment of penetrating wounds of the head the optimum time to operate is within six hours after the injury, but wounds which have gone untreated as long as forty-eight hours should be treated as fresh wounds and closed without drains, unless there is obvious infection. All metallic foreign bodies should be removed if possible, because they lead to secondary abscess and epilepsy. Generous use of sulfanilamide not only in the scalp and skull wound but in the missile tract in the brain is recommended. "Sulfanilamide is preferred," he says, "because it has been found to be much more rapidly absorbed into the blood stream from an open wound than any of the other sulfonamide drugs."

POINT OUT THAT LEPTOSPIRAL INFECTION IS OCCUPATIONAL HAZARD

"Leptospiral infection (Weil's disease or infectious jaundice) should be considered as an occupational hazard — not as an occupational disease," W. W. Stiles, M.D., and W. A. Sawyer, M.D., Rochester, N. Y., declare in *The Journal of the American Medical Association* for January 3.

"Certain occupations expose workers to a risk of leptospiral infection that is greater than the risk run in private life. Compensation for industrial infection is therefore justified, provided nonoccupational circumstances can be ruled out as more likely sources of the infection and that

the leptospiral etiology (cause) can be established conclusively."

They explain that human leptospiral infections have been frequently associated with circumstances or occupations in which the patient has had contact with the excreta of rats or, rarely, with those of dogs. Isolated cases have been adjudged industrial accidents, and compensation has been awarded in this country and abroad. Recent investigations have shown an unsuspected incidence of the infection in certain occupations. This finding has increased the concern about the industrial liability that may be involved. The authors place particular emphasis on the warning that it is "important that workers and their employers should be informed of the potential hazard of material contaminated by rat and dog excreta and that precautions should be taken to prevent such contamination."

The two physicians say that these infections are more severe in older patients and far more common in men than in women. The mortality rate in the United States is 17 per cent in patients less than 40 years of age, 63 per cent in patients more than 40 years of age and 33 per cent in the entire group reported in this country.

They say that infection is considered to be possible through the intact skin and mucous membranes as well as through these tissue after injury. Usually it follows contact of the abraded or sodden skin with infected mud or water, but it may follow the inhalation of water or the bites of rats, dogs or ferrets. The vast majority of infections have originated from water or moist objects contaminated with infected urine. Several species of animals have been infected experimentally or found to be diseased naturally and must therefore be considered as potential sources of this infection. The urine of infected human beings has also been regarded as hazardous in the spread of the disease.

Elaborating on the occupational hazard, the two authors say that leptospiral infection may be considered as such provided the occupation exposes the patient to rats or dogs, or to moist materials contaminated by the urine of these animals, and provided that the illness follows such exposure by the recognized incubation period of from two to nineteen days.

"Certain other criteria," they advise, "should be fulfilled before a leptospiral infection is considered as compensable. A nonoccupational source of infection should be eliminated as a probability. If the patient has been swimming or wading in water that may have been contaminated by rats or dogs, it is more likely that this was the source of his infection. If the patient has had contact with a pet dog, the animal should be studied for evidence of a leptospiral infection. . . . A rat-infested residence must also be eliminated as a probable source of the infection. It is imperative to prove that the patient is suffering from a leptospiral infection and not from some other illness that may be easily confused with the leptospiral disease.

"Of the laboratory methods available for the positive diagnosis of leptospiral infections, the most conclusive is the reproduction of the disease in guinea pigs that have been injected with macerated tissue or fluids from the patient, and recovery of leptospiral organisms from these animals. . . ."

SO-CALLED ACIDITY OF HUMAN BODY IS A POPULAR FALLACY

"So-called acidity of the human body is a popular fallacy," Hygeia, The Health Magazine states in answer to an inquiry in a recent issue.

"An acid is a sour substance which has certain effects on the color of chemical test substances or indicators and which combines with alkalis to make neutral substances known as salts," Hygeia explains. "An alkali on the other hand is a bitter substance which has the opposite effect on chemical indicators and which combines with acids to make salts. Some acids and some alkalis are strong and therefore destructive while others are weak and relatively harmless. Some acids are useful, some poisonous; the same is true of alkalis.

"The human body is neutral with a strong alkali reserve. It never becomes acid except after death and its alkali reserve is reduced only in severe illness or starvation.

"There are, however, certain bodily secretions which are normally acid and which should be acid. These are the perspiration, the stomach secretions, the urine and possibly the saliva. Attempting to alkalize these normal acid secretions is foolish and useless."

Then there is the story about the wife who objected to have her husband undergo an operation because she didn't want anyone to open her male.

Clinical-Pathological Conferences

J. J. Moore, M.D., Department Editor.

The following three cases were presented at the regional meeting of members of the American College of Physicians on December 6, 1941.

The first case was presented by Dr. Carl Apfelbach from Presbyterian Hospital; the second by Dr. E. R. Strauser from Wesley Memorial Hospital; and the third by Dr. Donald Manshardt from Passavant Hospital.

These cases were discussed before the presentation of the autopsy report by Doctors James Carr, Joseph Capps and Fred Drennan but unfortunately their discussion was not recorded.

CASE 1 PRESENTED BY

CARL W. APFELBACH, M.D.,
Presbyterian Hospital
CHICAGO

G. J., white, 52 years old, entered the Hospital 1-1-41. Previous to October, 1940, he had enjoyed excellent health. At this time he contracted "flu," manifested by head-cold, pharyngitis and general malaise. This disease kept him at home for 10 days. He returned to work but did not recover previous good health.

On 12-31-40, he again became acutely ill with chills, fever, projectile vomiting, colicky epigastric pain. Several hours later, he had an attack of dyspnoea.

The important facts obtained from the past history and review of symptoms were: severe rheumatic fever in childhood; neuritis in both arms in 1940, severe in the left; and during the previous four months two or three attacks of substernal "tight feeling." On admission the temperature was 99.6°, pulse rate 99, respiratory rate 20, blood pressure 110 mm. Hg. systolic and 65 diastolic; acute hyperemia of the pharynx; a presystolic and rough systolic murmur over the entire precordium without a thrill (constantly present during hospitalization); P_2 greater than A_2; slight tenderness of the right ankle followed in a few hours by swelling and redness.

On 1-2-41, pneumococcus, type XVIII, was cultured from the throat; W.B.C. 8,200, Hb. 70%, R.B.C. 3.8 million.

Hemolytic streptococcus and staphylococcus were cultured from a catheterized urine specimen. There were only a few leukocytes in the urine. Albumin was found only on admission specimen. Subsequently, the W.B.C. rose to 20,000, granulocytes predominated in the differential counts. Malarial parasites were not identified. X-ray examinations of the abdomen, chest and ankles were negative. Kahn and Wassermann tests on the blood were negative. No amoebae were found in the stools. The gonococcal complement fixation test was negative. Agglutination tests for typhoid, para-typhoid, proteus and Brucella group were negative.

The patient was in the hospital until 2-10-41. During this period there was daily fever which at the beginning was intermittent and varied between 98 and 103. During the second week, after treatment with Sulfanilamide, Sulfathiazole and later, Sulfapyridine, the temperature was normal. After this, however, there were daily fluctuations, associated with chills, that on some occasions went as high as 106° F. with daily fluctuations down to 98 and 97.6. During the stay in the hospital the swelling of the left ankle persisted and a diagnosis of thrombophlebitis was made. Some epigastric tenderness was present during entire first month, and on two occasions there was a palpable mass in the right upper quadrant. A laparotomy was performed

on 1-31-41. A moderately distended gall bladder was found and a small amount of turbid peritoneal fluid. Cultures of this fluid and bile were negative. The spleen was never palpable during entire course of the disease. Seven blood cultures were made and all were negative except on one occasion in one plate there was a single colony of streptococcus viridans. Petechial hemorrhages were searched for, none were found.

About one day before death, the patient developed a red, macular eruption on both sides of neck and left wrist. Temperature at this time was high, the patient become stuporous. Blood culture on last day had abundant growth of pneumococcus, Type XVIII. Except for coma, no other neurological signs developed. Examination of chest during last day was negative, there were no changes in the heart tones.

AUTOPSY

Anatomic diagnosis: pneumococcal (type XVIII) pulmonic endocarditis; old deformity (congenital?) of the pulmonic cusps and pulmonary conus; small, recent, septic infarcts of the right lung; acute, pneumococcal meningitis; acute, pneumococcal, serofibrinous pericarditis; acute, serofibrinous peritonitis; ileus; dilatation of the stomach; acute bronchial aspiration of stomach content with asphyxiation; organizing thrombosis of the left femoral vein; anasarca of the right leg; unhealed laparotomy wound; slight icterus; right hydrocele.

The essential changes observed from the outside of the body were marked emaciation; slight icterus of the sclerae; bluish discoloration from engorged veins over the right malleolus; moderate swelling and edema of the left lower extremity; enlargement of the right side of the scrotum; and healed laparotomy wound.

The heart weighed 315 g. There were no chronic alterations in the mitral and aortic leaflets. Attached to the anterior pulmonic cusp there was a mass equivalent to 2 cc., consisting of red and red-brown moderately firm thrombi. The three pulmonic cusps were slightly shrunken and thickened from fibrous tissue. There was no adhesion at the adjoining margins. The pulmonary conus was slightly enlarged, the wall stiffer than normal, and there were interlacing ridges of thickened endocardium. Some of these were also observed on the left side, extending up toward the undefended space on the septum.

This photograph of the right ventricle and pulmonary artery illustrates the location of the thromboulcerative pneumococcal endocarditis, the degree of deformity of the remaining pulmonary cusps, the location of the aberrant bands of endocardium in the pulmonary conus, and a moderate degree of dilatation of the lumen and hypertrophy of the wall of the pulmonary conus.

In the right upper lobe there were three small, red, firm regions under the pleura which on surfaces made by sectioning were dry, red-brown and granular. The lungs were over-distended with air. Both lower lobes were boggy due to engorgement by blood. In the bronchial tree there was an abundance of green-brown mucus extending out into the second and third divisions. In the left femoral vein there was a brown thrombus adherent to the lining only in a few small regions, the central part containing a pale gray-brown, purulent material.

In the abdominal cavity there were a few cc. of free fluid; thin layers of fibrin on the adjoining surfaces of loops of small bowel; and dilatation of the stomach, small bowel, and colon.

In the pericardial sac the fluid was turbid.

In the superior surface of the brain on both sides there was a pale green-gray exudate in the meninges.

From the heart's blood and cerebrospinal fluid,

pneumococcus, type XVIII was obtained from postmortem cultures.

The absence of chronic inflammatory changes in the mitral and aortic cusps, the presence of aberrant thickened ridges of endocardium in the pulmonary conus and septum of the left side, together with the fact that congenital malformations are much more common in the mitral valve than in other orifices, led to the conclusion that the essential disease process was congenital anomaly of the pulmonary cusps. Acute pneumococcal endocarditis developed on the cusps. No signs of embolism were obtained during life, and none were found anatomically except for a few septic infarcts in the right lung. Histologic preparations of these infarcts demonstrate acute thrombophlebitis of the veins in the infarct. The terminal bacteremia probably arose from the infarcts rather than from the organizing thrombi on the pulmonary cusp.

CASE 2 PRESENTED BY

E. R. STRAUSER, M.D.
Wesley Memorial Hospital
CHICAGO

M. B., 34 years old, male, entered hospital August 27, 1941. At age 10 he was knocked from a bicycle by an automobile but suffered no noteworthy injuries. However, 2 weeks later he was put to bed by his physician for "heart trouble" where he remained for 2 years, during which time he was attended regularly by his physician and developed "rheumatic fever." At the end of 2 years he resumed normal active life. At 14 years of age he had typhoid fever. At age of 16 or 17 he developed acne which was at first limited to his face but later migrated to his back from which it has never completely disappeared. In 1934, he had sore throat which incapacitated him for three or four days. Although the patient was normally active and enjoyed good health during adult life he was refused life insurance "because of his heart condition."

Beginning in August, 1939, the patient experienced a gradual loss of pep and vitality, becoming unable to play tennis or golf and being greatly fatigued from his usual day's work. Along with this, he became irritable and nervous. Treating himself with vitamins did not improve his condition, and he then consulted a physician. Upon completion of blood tests made during the first two weeks of December, 1939, he was told that he had undulant fever. During December he was unable to work, was confined to bed with a temperature that ranged from 100° to 103°. He suffered from a sharp pain localized to a small area in the region of the right shoulder. This pain appears to have been rather continuous and required sedatives for its alleviation. During January and February, 1940, his condition improved, his temperature returned to normal and he gained 7 pounds in weight.

In December, 1940, he had several episodes of pain in the right upper chest and some visual disturbance. In January, 1941, he had chills, fever and a stabbing pain in the left upper quadrant. About 2 weeks later he developed a "node on his right index finger." At this time he was admitted to a hospital in New York City. At that time his temperature was 38.2° C., pulse 90, respiration 20, blood pressure 132/80. The patient did not appear ill. The heart was not enlarged. There was a harsh blowing systolic murmur heard over the entire precordium, loudest to the left of the sternum in the 3rd and 4th interspaces. Otherwise physical examination revealed nothing noteworthy. Blood count: R.B.C. 4.6 million; Hb., 13.5 gms.; W.B.C., 8,500 with a moderate shift to the left. Blood cultures were consistently positive for "microaerophilic nonhemolytic streptococcus." He was given large doses of sulfadiazine with a blood level as high as 27.4 mg./%. Despite this medication he continued to have positive blood cultures and ran a slightly febrile course. However, his blood count was well maintained, he did not lose weight and felt quite well. His spleen became palpable. He was discharged from the hospital on the 43rd day with instructions to take 1 gm. of sulfadiazine every four hours when awake.

On August 27, 1941, he entered a hospital in Chicago. He gave no history of edema, but he had been dyspoenic at times. Since his discharge from the hospital in New York he was confined to bed, ran a low grade fever, complained of fatigue, lost weight, and developed transient pains in the chest, shoulders and extremities. Physical examination in August, 1941, revealed an enlarged heart with a regular rhythm and with presystolic and systolic murmurs best heard at the apex. The liver was palpable and the spleen questionably so. There was tenderness

over the entire abdomen on deep palpation but no rigidity. Reflexes were exaggerated. There was dullness over the base of the left lung with reduced breath sounds and tactile fremitus over this area.

E.K.G. — 8-27-41, rate, 90; rhythm, nodal. P waves are not demonstrable. Left axis deviation. QRS complexes slurred in all leads; T waves upright in all leads. Impression: nodal rhythm. Evidence of myocardial pathology.

9-2-41, Rate, 90; rhythm, nodal. P.-R. 0.12; QRS 0.05. The most notable change since the graph of 8-27-41 is the presence of P waves.

Sulfathiazole was administered and the blood level of the drug ranged from 2.02 to 7.5 mg./%.

Temperature was irregular and ranged up to 103. Red cell counts were below 4 million most of the time in spite of transfusions. Leucocyte count ranged from 8,000 to 10,000 but tended to rise toward the end, reaching 37,650 on the day before death. Urinalysis was negative throughout. Blood chemistry: Total plasma proteins, 5.59; albumin 2.84; globulin 2.75; chlorides 478.5; inorganic phosphates 3.9.

Repeated blood cultures yielded a long chain streptococcus in dextrose brain broth but no growth at any time in blood agar plates.

The following items are from the progress notes:

9-22-41 Bilateral ankle edema.
9-23-41 Numerous petechia in the skin of both feet.
9-26-41 Edema of external genitals.
10-9-41 Blood pressure 156/50. Cyanosis of nails and lips which continued to the end.
10-10-41 Chill. Temperature 95 to 102.
10-12-41 Delirium and aphasia.
10-13-41 Petechiae on fingers, forehead and abdomen. Rales in left 3rd interspace.
10-14-41 Death.

General Description — The body is that of a well developed, white man 35 years of age. There is moderate rigor mortis and marked posterior lividity. Frontal and vertex baldness are rather marked. There is slight deviation of the nasal septum to the right. The pupils are round and measure about 7 millimeters in diameter, each. The teeth are in very good condition, only one lower left molar is absent.

Abdomen — There is about 1 centimeters of subcutaneous abdominal fat. The peritoneal cavity contains about 1½ liters, clear, light brown fluid. There are no adhesions.

Intestine — The appendix is present but is bound to the posterior peritoneum and is fibrotic. There is slight enlargement of small, mesenteric lymph nodes close to the bowel wall. There are no gross changes in the bowel wall.

Stomach — The rugi of the stomach are mostly obliterated and the mucosa has a granular appearance. There are no ulcers nor mucosal hemorrhages.

Liver — The liver weighs 1820 grams. It is very firm and of a dark red-brown color. Markings of passive congestion are very distinct on the cut surfaces. The gall bladder wall is slightly thickened and the gall bladder is filled with thick, opaque, dark brown, mucoid bile. There are no stones. The common and cystic bile ducts are patent.

Pancreas — The pancreas is of normal size and weighs 85 grams. Lobulation is distinct.

Spleen — The spleen weighs 490 grams. It is firmly adherent to the under surfaces of the diaphragm on the left lateral, parietal wall. There are numerous large infarcts, most of which are old and some of which are cystic. Recent infarcts of the spleen are few.

Adrenals — The adrenals are normal in size and consistency. Pigmentation is normal.

Kidneys — The right kidney weighs 135 grams. The capsule strips with moderate difficulty exposing a pink-tan surface in which there are a few large, deeply depressed infarcted areas. The cortex measures from 7-8 millimeters in thickness and the markings are obscure. The medullary portion of the kidney show no change. The pelvis is normal in appearance. The left kidney weighs 150 grams. The capsule also strips with moderate difficulty. The surface of the kidney has the same general appearance as the right except for more numerous, large, infarcted areas. In other respects the kidneys are exactly similar.

Urinary Bladder — The urinary bladder and ureters are normal in appearance.

Prostate — The prostate is small and symmetrical and of normal consistency.

Chest — Each pleural cavity contains about

800 c.c. of light brown, fairly clear fluid. There are adhesions at both apices, one dense band passing from the lower margin of the right upper lobe to the parietal pleura. The pleural surfaces are slightly dull but not injected.

Lungs — Several small infarcts appear within the substance of the lung. Most of these are present in the left upper lobe. The largest measures only 2 centimeters in diameter. It is light grey and softened in the center with peripheral congestion. There are no infarcts which extend to the pleura. The mucous membrane of the trachea and large bronchi is moderately injected. There is no enlargement of the peribronchial lymph nodes.

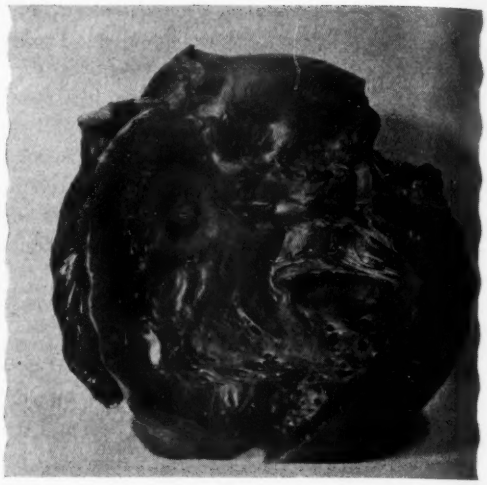
Heart — The heart weighs 395 grams. The pericardial sac contains about 200 c.c. of light, clear, straw colored fluid. The pericardial surfaces are slightly dull, especially the epicardium. The musculature of the left ventricle measures 16 millimeters and that of the right 4 millimeters. There are numerous light, tan-brown vegetations attached to the aortic valve leaflets and also to the aortic wall and endocardium on either side. These vegetations are also numerous on the ventricular surfaces of the mitral valve cusps. The largest of these measure over one centimeter in length. All of them are well organized. One flattened vegetation extends over the auricular surface of the mitral valve and over one mitral valve leaflet. Only a very small amount of friable thrombus is present on any of these vegetations. There is an opening through the interventricular septum which measures about ¾ths centimeters in diameter. This opening just below the aortic valve is mostly closed by vegetations. There is a small pea sized, very hard lymph node lying close posteriorly between the origin of the aorta and the main pulmonary artery. Circumferences of the various heart valves are as follows:

Aortic — 6.5 Centimeters
Pulmonary — 8 Centimeters
Tricuspid — 11 Centimeters
Mitral — admits the first two fingers

Esophagus — The esophagus is normal in appearance.

Anatomical Diagnosis

1. Vegetative endocarditis (Mostly of aortic valve).
2. Patent interventricular septum.



Vegetations on aortic valve. Small quill in patent interventricular septum, showing surrounding vegetations about opening through interventricular septum. Vegetations on ventricular surface of mitral valve. Mitral valve orifice.

Note: Vegetations on auricular side of mitral valve leaflets not shown.

3. Moderate enlargement of heart, especially the left ventricle.
4. Hydropericardium.
5. Bilateral hydrothorax.
6. Multiple small infarcts of lungs.
7. Infarcts of spleen and kidneys.
8. Marked passive congestion of the liver.
9. Marked baldness. (Vertex and frontal).
10. Absence of one tooth.
11. Slightly deviated nasal septum.

Microscopic

Liver — There is marked destruction of liver cords. This destruction is more marked about the central veins and intermediate portions of the lobules. Marked hemorrhage replaces the liver cells. The histological condition of the liver is that of acute passive congestion.

Pancreas — There is slight fibrosis of the pancreas. The islets are apparently normal.

Adrenals — Some of the fat tissue about the adrenals show early changes of fat necrosis.

Lungs — Small infarcts appear in the lungs. These alternate with areas of collapse. The bronchi contain considerable mucus and debris.

Heart — There is slight fibrosis of the endocardium.

Spleen — The spleen is considerably congested and contains many infarcted areas.

Kidney — Areas of fibrosis and dense round

cell infiltration appear in the cortical portions of the kidneys and are associated with fibrotic glomeruli.

CASE 3 PRESENTED BY

DONALD MANSHARDT, M.D.

Passavant Hospital

CHICAGO

Mr. F. G., white, aged 55, married, and an *advertising agent by occupation, entered Hospital* on April 14, 1941, with the following *complaints:*

On the evening of April 12th, he had a severe chill, followed by nausea and vomiting. Since that time he has experienced a dull headache, pain in the eyeballs and the back of the neck, *mild aching and weakness of the extremities,* and acute abdominal distention.

Past History and General: The patient, a moderately obese, middle-aged white male, states that he has been under considerable nervous strain for the past several years, that his eating habits and appetite are consistently poor, that his business required him to drink frequently, and that his chief complaint has been chronic fatigue. Previous illnesses include an attack of scarlet fever in childhood, followed by "rheumatism," gonorrhea with orchitis, 36 years before entry, and seven hospital admissions during 1930, when he was treated for diverticulitis and duodenal ulcer confirmed by X-ray examination. He is married, his sex life is normal, but he has had no children. He complains of sore throat and hoarseness for a week before admission.

Physical Examination reveals the following: The pharynx was injected and there was some soreness of the larynx on pressure. A few fine rales were present medial to the right scapula and in both lung bases. The pupils were sluggish and lacrymation was excessive. The patient groaned as he breathed and yawned frequently. A marked right scoliosis was present, with thoracic deformity. There was a generalized abdominal distention and pain on pressure in the left lower quadrant, midway between the umbilicus and Poupart's ligament.

The blood pressure was 94/66, pulse 80, temperature 101°. Urinalysis on admission showed a reaction of pH 5.5, specific gravity, 1.015, albumin++, occasional RBC and 4-8 leucocytes /HPF, 4+ epithelial cells and a few facteria. Erythrocytes were 6,030,000, Hb 15 grams. Leucocytes 11,400 with 81% polymorphs, 25% of which were non-filamented forms.

On April 15th, the patient developed a chill and his temperature rose to 104.4°. This was *followed by nausea and vomiting, after which* the temperature came down rapidly. Defense reaction developed over the right upper quadrant. A stool examination at this time was negative. An examination of the gastric content was positive for blood by the Guaiac test. X-ray examination of the stomach on April 15, showed an *increase in the rugal folds, suggesting a pre*pyloric ulcer. Two series of electrocardiograms *were essentially normal.*

On April 16th, some tenderness of the epigastrium and left lower quadrant were noted. Blood pressure was 60/54 at this time. The leucocytes rose to 25,500 with 55% polymorphs, *22% of which were non-filamented.* Gastric contents showed 2+ blood by the Guaiac test. Blood sugar was 122.5 mgms., cholesterol 210 mgm.

The phenolsulfonphthalein test was as follows:

Time	*Spec.*	*% Dye*	*Total*
15 min.	50 cc.	25%	25%
1 hour	25 cc.	30%	55%
2 hours	40 cc.	10%	65%

On April 17th, the patient showed a very slight icteric tint to the sclerae and the liver was enlarged two fingers below the costal margin. X-ray examination at this time was essentially negative with regard to gas or fluid under the diaphragm.

An exploratory operation was performed on the 17th and following findings were reported. A small thickened area in the duodenum about 3 cm. distal to the pylorus was palpated. This had no reaction about it. There was no evidence of fat necrosis. The stomach and spleen were normal; the gall bladder was not palpated. The ascending and descending colon contained many small, palpable diverticuli. The small intestine seemed normal and no thrombi were palpable in the mesentery. The surgeon reported that "nothing in the peritoneum accounts for the acute picture of shock and sepsis."

On April 18th, the patient developed a chill with a fever rising to 105°, after which the temperature gradually fell, returning to normal in five days and rising terminally. Singultus set

in, a Levine tube was passed and coffee ground material, later bile-stained fluid was obtained from the stomach. The blood pressure rose to 104/68 and remained at this level for the next three days. 1000 cc. of 5% glucose in normal saline were given every six hours from this time until death. The jaundice continued to increase and on the 19th the icterus index was found to be 75 units. The leucocyte count at this time rose to 16,550 with 95% polymorphs, 36% of which were nonfilamented. The gastric contents continued to be positive for blood. Urinalysis showed a reaction of pH 6, albumin 4+, positive bile, occasional hyaline, and 40-80 granular casts/LPF, 10-20 erythrocytes and 10-40 leucocytes/HPF.

On the 21st there was evidence of suppression of urine and edema. At this time the urea nitrogen was 108 mgm., blood chlorides 485 mgm. and the icterus index 115 units. A serosanguinous discharge developed in the wound and the jaundice increased.

On April 25th, a uremic frost appeared, the patient failed rapidly and expired.

Autopsy Findings — The body is that of a well developed, moderately obese white male, 5 feet, 6 inches in length, weighing 166 pounds. The skin and sclerae were deeply icteric. Numerous petechial hemorrhages were present over the posterior surfaces of both thighs, and the origin of the right deltoid muscle. No lymphadenopathy or pitting edema was present. There was a marked scoliosis of the spine, with convexity to the right.

The *thyroid* gland weighed 20 grams and was not remarkable.

The *heart* weighed 430 grams. Except for a large amount of subepicardial fat and subepicardial hemorrhage over the right atrium, there were no noteworthy changes. The valves were competent, and of normal measurement, and the coronary arteries were patent.

The *aorta* contained a few atheromatous plaques.

Both *lungs* showed moderate edema at their bases, and the lower lobe of the right lung was atelectatic.

The *stomach* contained a considerable quantity of black blood. Hemorrhagic petechiae were generalized in the mucosa. The rugal folds of the pre-pyloric region were unusually prominent, but no ulceration was found.

The *small intestines* were not remarkable, except for the presence of a considerable amount of black blood in their lumina.

The *spleen* weighed 230 grams, presenting the gross and microscopic picture of acute septic splenitis.

The *pancreas* showed only extensive fatty infiltration.

Numerous small, true diverticula were present in the *sigmoid colon*. Most of these measured from one to two mm. in diameter. A larger diverticulum, measuring 1 cm. in diameter lay at the mesenteric side of the rectosigmoid junction. In an area six cm. in diameter about this diverticulum, several black, polypoid, elongate, submucosal masses were evident, having the appearance of thrombosed veins. There was considerable infiltration about the diverticulum, and a small abscess, 1 cm. in diameter was present nearby. In this region, the branches of the portal vein were distended with gray-green pus which extended into the substance of the liver.

The *liver* weighed 2540 grams. The surface was orange-brown in color, with dark gray-green irregular markings, in which numerous small elevated yellow abscesses were evident, measuring up to 2 mm. in diameter. On cut section the distribution of the abscesses were found to be most numerous about the larger portal radicles which were filled with pus. Microscopic sections revealed little involvement of the hepatic arteries and bile ducts, with extensive necrosis of liver cords apart from the abscessed areas. Many liver cords in some areas were fragmented and disrupted. The *gall bladder* was the site of a moderate chronic cholecystitis.

The right *kidney* weighed 140 grams, the left 150 grams. Each showed, microscopically, advanced tubular changes. Some of the tubular cells were crowded into the capsular spaces. Considerable albumin and a few erythrocytes were present in the tubular and capsular spaces. In addition to the more acute degenerative changes, areas of chronic inflammatory exudate were present in the kidney pelvis and medulla.

Examination of the *spine* disclosed a marked osteoporosis in the vertebral bodies in the lumbar region.

The *testicles* were moderately fibrotic and

atrophic, showing a complete absence of spermatogenesis.

In the bellies of both *psoas muscles* were found massive hemorrhages, without microscopic evidence of infection.

Cultures from the portal system were positive for staphylococci and B. Coli Communis.

Permission was not granted for examination of the cranial cavity. Other findings were not contributory.

The *anatomical diagnoses* include the following:

1. Multiple diverticula of rectosigmoid colon, with acute diverticulitis of one.
2. Acute suppurative pylephlebitis.
3. Multiple liver abscesses of portal origin, containing staphylococci and B. Coli Communis.
4. Marked jaundice.
5. Acute septic splenitis.
6. Mild chronic pyelonephritis.
7. Chronic cholecystitis.
8. Massive hemorrhages into psoas muscles, bilaterally.
9. Numerous petechial hemorrhages of skin, stomach mucosa and visceral pericardium.
10. Mild atheromatosis of aorta.
11. Testicular fibrosis and atrophy.
12. Fatty infiltration of heart.
13. Marked right scoliosis, with osteoporosis of lumbar vertebrae.
14. Recent right paramedian incision, sutured.

COMMENT

The pathological urinary findings on admission were evidently the result of a mild chronic pyelonephritis. The terminal suppression of urine, occurring nine days after the first acute symptoms is accounted for by the marked tubular degeneration in the kidneys, and was evidently a result of the hepato-renal syndrome.

The osteoporosis of the spine was of long standing, and the etiology was not evident. The widespread petechial hemorrhages and hemorrhage into the psoas muscles may have been initiated by a nutritional deficiency, especially a lack of vitamins C and K.

The marked parenchymal fragmentation and disorganization in sections of the liver and of interest. These changes were noted by Stewart and Lieber frequently in livers following surgical decompression of liver abscesses and rather rarely in other diseases of the liver. (Arch. Path. 18:30-41. 1934).

THE HAWAII MEDICAL SERVICE PLAN

On May 31, 1941, the Hawaii Medical Service Association ended its third year of operation and its first year under its agreement with the Honolulu County Medical Society.

The 33-⅓% deducted from all doctors' bills and held in the Physicians Reserve Fund is fully in tact and amounts to $6,148.89. During the coming year the Association will deduct only 20% instead of 33-⅓% from all doctors' bills and this will also be placed in the Physicians Reserve. It is hoped that at the end of the year the full fee schedule rates, without any discounts, will be paid on all bills.

As many of you will recall, the Association began three years ago with 600 members. Today we have approximately 5,000. This is directly due to extension of the plan to include industrials and the low salary employee. In the past year industrial firms have shown an increasing interest in the plan for their employees, and we have at this time 121 firms insured. Many of the employees insured are earning less than $75.00 per month.

Dr. Fred Irwin, retired, has been with the Association for the past year as medical director and has been doing an excellent piece of work. Dr. Irwin is available at the Association offices each weekday between 10 and 12 a.m. and we urge you to call him whenever you are in doubt as to the procedure in any case.

Medical insurance plans operated by state medical societies or by county societies are gaining interests on the mainland. There are several such plans now in full operation — in New York City, Michigan, California and Oregon. The Hawaii Medical Service Association keeps in contact with these and we feel that our three years' experience has given us quite a jump on these other plans. None of them are exactly alike, there is great variation as to benefits and other details, but essentially they are all endeavoring to serve the same fundamental purposes.—*Hawaii Medical Journal — Nov., 1941.*

DR. WILFRED PICKLES, of Providence, tells us in the *R. I. Medical Journal* for October: In August, 1840, workmen repairing the chancel of St. Peter's Mancroft accidentally broke open a coffin which proved to be that of Sir Thomas Browne. After a careful examination of the remains by an archaeologist, the skull was removed by one of the workmen and later found a resting place in the museum of the Norfolk and Norwich Infirmary. Here it was exhibited together with these lines from Sir Thomas's *Hydriotaphia* — "To be knaved out of our graves, to have our skulls made drinking bowls, and our bones turned into pipes are tragical abominations escaped in burning burials."

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

Clarence B. Ripley of Galesburg has been elected one of the nine Trustees of the Interstate Post-Graduate Medical Association.

E. K. Steinkopff, University of Illinois College of Medicine 1929, has been appointed by Dr. Roland R. Cross as Medical Tuberculosis Control Officer and Chief of the Division of Tuberculosis Control for the state of Illinois. He will take office about the first of February, 1942.

N. C. Barwasser of Moline addressed the dermatology section of the Southern Medical Association at St. Louis November 11th on the subject of The Treatment of Keratosis Folliculosis (Darier) with Massive Doses of Vitamin A.

The Douglas County Medical Society has launched a program whereby every child in the schools of Douglas County and every pre-school child may be immunized against diphtheria. The two injections of toxoid necessary for total immunization against diphtheria will be given for a charge of one dollar for each child, providing the child is brought to the office of his family physician between the dates of January 20, 1942 and February 28, 1942.

The Educational Committee and the Illinois State Medical Society participated in the Annual Summer Round-Up Conference of the Illinois Congress of Parents and Teachers at the Stevens Hotel, Chicago, January 20.

The VICTOR NEWS for January 1942 carries an article "Medical Profession Called Leader in 1941 Advancement" quoting from the SCIENCE SERVICE, world-wide scientific news-gathering organization. SCIENCE SERVICE has declared the field of medicine to be a leader in building up an impressive list of notable achievements during the twelve-month period. Among the advances included in the review are: "enriched" white flour, the photographing of Influenza A virus, sulfadiazine spray treatment of burns, possibility that infantile paralysis may be spread by flies, and many others.

The office of the Educational Committee has mailed copies of the papers presented at the Post-Graduate Conferences held during the fall of 1941 to all doctors subscribing for them. Doctors who paid for the entire series will receive copies of the Conferences being planned for the spring of 1942.

The Educational Committee is receiving many requests from lay organizations for programs on "Medicine and Defense." During the month of January talks on that subject were given by Doctors Charles H. Phifer, H. Prather Saunders, George K. Fenn, Harold M. Camp.

COMING MEETINGS

February 3 — Vermilion County Medical Society — 6:00 Wolford Hotel, Danville — Willard O. Thompson, M. D., "Clinical Application of Sex Hormones."

February 3 — Bureau County Medical Society — 6:00 St. Margaret's Hospital, Spring Valley — Charles Galloway, M. D., "Prevention of Toxemias of Pregnancy" and Edward Allen, M. D., "Obstetric Hemorrhage."

February 5 — Perry County Medical Society — 6:30 Elks Country Club Tamaroa — H. L. Joslyn, M. D., "Medical Management of Diseases of the Stomach" and Dean Sauers, M. D., "Surgical Management of Diseases of the Stomach."

February 10 — Effingham County Medical Society — 6:30 Benwood Hotel, Effingham — Angelo S. Geraci, M. D. — "Heart Disease."

February 11 — McDonough County Medical Society — 6:00 P. M., Macomb — Fred M. Meixner, M. D., "Aviation Medicine" and a paper on "Eye."

February 12 — Union County Medical Society — 6:00 P. M., Anna — H. I. Stevens, M. D. — "Fractures of the Pelvis."

February 13 — Jersey-Greene County Medical Society — 6:30 residence of Dr. H. R. Gledhill, Jerseyville — Edward W. Cannady, M. D., "Disorders of the Gastro-Intestinal Tract."

February 17 — Knox County Medical Society — 6:30 Galesburg Club, Galesburg — W. B. Raycraft, M. D., "Pneumonia in Infancy and Childhood" and R. E. Lee, M. D., "The Ambulatory Treatment of Varicosities and Associated Pathology."

February 26 — Henry County Medical Society — 6:30 Kewanee — George J. Musgrave, M. D. — "Why The Public Fears Sinus Disease and the Present Method of Treatment." One other speaker.

March 3 — Bureau County Medical Society — 6:30 Princeton — Clayton J. Lundy, "Management of Heart Disease in Pregnancy."

March 10 — Bureau County Medical Society — 6:30 Spring Valley, St. Margaret's Hospital — Lindon Seed, M. D. — "Goiter."

March 17 — Knox County Medical Society — 6:30 Galesburg Club, Galesburg — H. C. Hesseltine, "Vitamins in Obstetrics and Gynecology" and C. H. Galloway, "Anesthetics in Obstetrics."

Every Friday noon — Will-Grundy County Medical Society — 12:00 o'clock Luncheon at the Louis Joliet Hotel, Joliet.

MARRIAGES

Louis D. Boshes, Chicago to Rhea Amber, Chicago, on January 4, 1942.

Clarence Vernard Hodges, Chicago, to Miss Nelle Mae McAfee of Flossmore, Ill., recently.

DEATHS

Charles Davison, Chicago; Northwestern University Medical School, Professor Emeritus of Surgery at the University of Illinois College of Medicine. In 1926 he retired as head of the department of surgery at the University of Illinois College of Medicine after 26 years of service. In the same year he also ended 37 years' service on the staff of the County Hospital, where he had been chief surgeon and president of the medical staff. He died January 19, 1942 at the age of 84.

John Garfield Frost, Chicago; Northwestern University Medical School, 1907; professor of surgery in Loyola University School of Medicine and attending surgeon in the County Hospital. He was chief surgeon for the Chicago & Eastern Illinois Railroad, the Chicago & Western Indiana Railroad and the Belt Railway Company. Died January 2, 1942, aged 59.

Harris Ainsworth Jacobson, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; physician for the draft board; aged 54; died, Dec. 22, 1941.

Leslie Frederick MacDiarmid, Chicago; University of Illinois College of Medicine, 1909; he was on staffs of the Garfield and University Hospitals. Died January 20, 1942, aged 57 years.

William A. McKee, Chicago; University of Toronto Faculty of Medicine, 1926. Died January 3, 1942, aged 43.

Anthony Augustus O'Neill, Chicago; Kansas City Medical College, 1890. Died January 4, 1942, aged 83 years.

Thomas William Plant, Chicago; Loyola University Medical School, 1916. Senior Surgical staff of St. Mary's Hospital. Died December 29, 1941, as result of automobile accident, age, 55.

William Rhinehart Schick, Chicago; University of Illinois College of Medicine, Chicago, 1940; first lieutenant in the medical reserve corps of the United States Army; aged 31; was killed, Dec. 7, 1941, in action during the Japanese raid on Pearl Harbor.

CHARLES EDWARD SCELETH, Chicago; Rush Medical College, 1896. Served as a captain in the army medical corps in the World War. He was medical superintendent of the Bridewell Hospital for 33 years and attained national prominence for his research in nervous diseases, alcoholism and drug addiction. Died January 19, 1942, at the age of 68 years.

GEORGE DETARNOWSKY, Chicago; Northwestern University Medical School, 1900; professor of surgery at the University of Illinois College of Medicine. In the World War, he served as a colonel in command of the 378th medical regiment and won 22 decorations including the Distinguished Service medal. He was co-founder of the Ravenswood Hospital and former president of the Chicago Surgical Society and the Chicago Gynecological Society. Died January 20, 1942, aged 68.

ARTHUR M. BISHOP, Good Hope, Ill.; Northwestern University Medical School, 1898; retired. Died January 11, 1942 as the result of an automobile accident; age, 70.

ROBERT E. BLEY, Bunker Hill, Ill.; Jefferson Medical College of Philadelphia, 1910. Died January 18, 1942, aged 55.

GEORGE WING DRYER, Moline, Ill.; Harvard Medical School, 1931. He was battalion surgeon for the 2nd battalion of 123rd field artillery, Illinois National Guard. Died January 12, 1942, after an 18 months' illness, at the age of 37 years.

JACOB G. FISHER, Danville, Ill.; Rush Medical College, 1901. Member of the staffs of the Danville Hospitals. Died December 24, 1941, age, 66 years.

OTIS P. HAMILTON, Forrest, Ill.; Illinois Medical College, 1907. In the World War he was a First Lieutenant at Camp Meade. In 1939-40, he was president of the Livingston County Medical Society. Died January 19, 1942, aged 59.

JOSEPH FRANKLIN HALL, Kirkwood, Ill.; Hospital College of Medicine, Louisville, 1907. Died January 5, 1942, aged 62.

COLUMBUS HUFFAKER, Chrisman, Ill.; Kentucky School of Medicine, 1905. Member of the Wabash Valley Aesculapian Society. Died January 11, 1942, age, 69.

CHARLES W. HULL, Farmer City, Ill.; Dearborn Medical College, 1906. He had been in practice for 36 years, 11 in Chicago and 2 in Mansfield before moving to Farmer City. Died January 9, 1942, age, 73.

CHARLES W. JOHNSON, McLeansboro, Ill.; Barnes Medical College, 1899. Died December 23, 1942, aged 29.

CYRUS S. KEAGY, Mill Shoals, Ill.; Missouri Medical College, St. Louis, 1889; aged 78; died, Nov. 29, 1941.

RUSSELL BURTON MAIN, Norris City, Ill.; George Washington University School of Medicine, 1900. Member of Indian Creek Legion Post 109 and a Veteran of the Foreign Wars Chapter. He was an ordained Presbyterian minister. Died December 23, 1941, aged 65.

FRANCIS MARION THURMAN, Pearl, Ill.; Barnes Medical College, St. Louis, 1904. Died January 14, 1942, aged 70.

LEE OTIS VICKERY, Lena, Ill.; Loyola University School of Medicine, 1919. Died January 10, 1942, aged 54.

GEORGE T. WEBER, Olney, Ill.; Missouri Medical College, 1894. Died December 26, 1941, aged 71.

WILLIAM A. PHELPS, Thebes, Ill.; Kentucky School of Medicine, Louisville, 1884; member of the Illinois State Medical Society; aged 86; died, Dec. 7, 1941, of cerebral arteriosclerosis and carcinoma of the face.

ROY THOMAS RODAWAY, Roanoke, Ill.; Bennett Medical College, Chicago, 1913; member of the Illinois State Medical Society; past president of the Woodford County Medical Society; on the staff of St. Francis Hospital, Peoria; served during the World War; county coroner; aged 54; died, Nov. 4, 1941, at his summer home in South Haven, Mich., of coronary disease.

A tuberculosis service is one which illustrates very clearly the emotional meaning of illness. If the diagnosis serves as an escape, the patient may accept a recommendation for sanatorium care very willingly. Since that is what may be most needed the accomplishment of this first step is usually considered helpful. Yet, if the motivating force of the patient's desire to get well is lacking, it may be difficult to arouse, and the benefits of sanatorium care may be less effective until this occurs. If the diagnosis means essentially a frustration, an interference with plans, the patient may react in many different ways. He may, and the big majority do, accept his problem and meet it to the best of his ability. Or, he may be very resentful, blaming his employer, his parents, his wife, the Diety, and society in general. Life has hurt him and he must hurt back. Or he may react by denying the existence of any trouble. He may say and believe that he feels better, that he can do more things, that his activities are increasing . . . . . The function of the nurse (and the doctor) is to interpret the health needs and to help the patient consider them. Dorothy I. Roberts, R.N., Pub. Health Nursing, Dec., 1941.

Tuberculosis among the interne group in hospitals is important enough to receive particular consideration. At best, to have tuberculosis is a time-consuming, unpleasant experience for any young person to contend with. Increasing numbers of medical schools are beginning to approach this problem by the periodic examination of their student body. Hospitals, in contrast, are backward. Reginald Fitz, M.D., Jour. of Amer. Med. Assn., Sept., 1941.